

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.



GLEANINGS IN BEE CULTURE

JUNE, 1919

EDITORIAL

ONE OF OUR SUBSCRIBERS, W. J. Harvey of Upalco, Utah, reports for last year



**Prize to be
Given for the
Best Record.**

the following remarkable record: "Last year I obtained 908 lbs. of surplus from one colony, and would like to learn how near this comes to being the world's record. I have plenty of sweet clover and about 100 days of honey flow. A yield of 171 lbs. in ten days was the best for that period. The only special attention this hive had was to be extracted from every ten days; or, when extracting was not possible, I gave plenty of storage room. It always took three supers to hold the bees, with one to two inches of air above the top super. With 40 hives, and 'two increase,' I got 240 five-gallon cans of honey. As this good hive made 15 cans, you can see that there were only three cans more than twice the average, and that is nothing unusual, according to what I read. There was only one queen, and no bees nor brood given to this hive during the season. I fed outdoors from early spring till the honey flow, and from frost to freeze. I also fed 'natural dry powder'—pollen mixed about $\frac{1}{4}$ to $\frac{3}{4}$ flour."

Can any of our readers beat this? If every one could do as well as this in the bee business, many of them, at least, would give up their banks and their gold mines. But not every one is able to do it. If any one can break this record of 908 pounds surplus from one colony, either in the United States or Canada, let him hold up his hand and we will publish the record.

Gleanings has decided that it will send a \$20 breeding queen to the man in the United States or Canada who can prove the highest record for one colony during 1919, giving names of supporting witnesses if required.

IN TALKING WITH a producer of comb honey in Nevada, who operates 3,000 colonies, and produces several carloads of comb honey each season, we learned several valuable



**Short Cuts in
Comb-honey
Production.**

hints which may save work for other producers. Perhaps some of his ideas may not be as successful under different conditions. He operates a large ranch for alfalfa hay

and seed, and, incidentally, gets 800 pounds of alfalfa seed per acre, while a ranch ten miles away, without bees, produces only 250 pounds of seed.

He prepares his supers some time in advance, ready to place on the hives when the honey flow begins. They must be trucked some distance. He always uses a bottom starter. For the top starter he finds the best results in straight even combs come from using a V-shaped starter. Other forms under his conditions are inclined to curl, resulting in irregular combs. When the sections are in the super, he paints their top surface with hot paraffin. This excludes all moisture, travel-stain, or propolis; and the work of scraping is only a small fraction of what it is without this protection. If the scraping is done in a cool temperature the film of paraffin comes off easily, carrying with it all stains or propolis. Should the supers remain unused or unfinished till another season, the paraffin protects the sections from dampness, mildew, and discoloration.

Mr. Warren visits his bees three times each season. In April he goes thru, dividing and equalizing, making approximately three colonies from one. At the opening of the honey flow in July he unites three hives into one, piling the supers on six or eight high, letting the queens fight it out. He returns in the fall and takes off the honey. By this plan he has three queens building up a working force during the breeding season; and also has a big working force during the honey flow but with reduced breeding at that time—all this with a minimum of labor.

THE SHORTAGE OF SUGAR was not the sole cause of the high price of honey during the war. People



**The Price of
Honey
Looks Up.**

have been gradually learning to use more and more honey, and a steadily increasing number of families are coming to regard it as a necessary article of diet. They have come to recognize it as nature's concentrated sweet, a form of carbohydrate that is easily assimilated by the human system. Many of the half million people in this country alone, suffering from diabetes, as a result of eating too much common sugar or candy, have learned that, if substituted

in time, the trouble may be stopped by the use of honey instead of sugar.

Also those factors, such as a greatly inflated currency, Europe's acute need of food, and the labor situation, that have, during the war, increased the cost of living 61.3 per cent, have also had their share in increasing the price of honey.

Last fall, and up to the middle of January, honey was held at its highest figures. As the price remained stationary, with no apparent tendency to drop, many loaded up, when, without warning, the ban was lifted from sugar. The arts and trades that could not get their requirements of sugar up till then, now figured that they could make a syrup for about seven cents against honey at three times the price. All at once they were seized with a panicky desire to unload the higher-priced article for which they had paid 22 and 23 cents, and buy sugar at nine cents or a seven-cent syrup that they could get in unlimited quantities. Some of the big icecream concerns that had been using honey by the carload now put it on the open market at 18 cents, while they had, as they admitted, paid 22½ cents for it.

Then there was the ever prudent housewife who likewise was compelled to use honey to complete her requirements. Now that the restrictions on sugar had been removed, why should she pay 40 and 50 cents per pound for honey when she could now get all the sugar she needed at 10 cents or a syrup at 7? She didn't see that honey would go further because it had more food value per pound, and because it had a flavor. Oh, no! she could get a syrup for one-fifth the cost of honey. The honey she had would be "kept for company," and, of course, she would not buy any more. Such a course would slow down sales for the time being.

There was one more important factor; and that was that Europe stopped buying honey temporarily—probably because it was concluded, now that the armistice was signed, there would be a drop in all food products.

The heavy export demand during the last two years of the war had a tremendous influence on the price of honey. Buyers were out everywhere hoping to make a "big scoop" by selling it for export. Many of them did make a "scoop." When, therefore, this demand suddenly stopped early last winter many found themselves overloaded. The result was, these buyers, instead of being out to get more honey, were trying to unload before the market went too low. One broker, we are informed, lost \$42,000 on 7,000 cases of honey he unloaded. Others lost like amounts. All this made buyers cautious. The result has been that sales have been few and far between. Buyers have been waiting to see where the bottom would be before investing.

This would be discouraging; but, happily, the cloud has a silver lining. The bottom has been reached, and the market is now looking upward. The conditions that caused the previous high prices still exist; with

the exception of the sugar situation, which has changed. Yet even that is now improving. In addition are several new factors operative for higher prices.

The first important factor we shall consider is whether California will have a crop; and if so, how large? It should be borne in mind that the seasons in California are very uncertain. When there has been 18 inches or more of rainfall in the southern part of the State, a crop of sage is almost a sure thing. With the certainty of a crop, and a prospect of 500 cars to go east, the market is inclined to weaken. If, however, there has been insufficient rainfall, the market east as well as west is inclined to stiffen. This year California has had only ten inches of rainfall for most sections in the southern part of the State. These sages are not yielding as they should, and the crop will be very short from present indications. While orange is usually a sure crop, it is going to be light this year. Moreover, orange in the aggregate represents only a small part of the amount produced from the sages, wild alfalfa, and wild buckwheat, for sage is often mixed with either or both of the two last-named sources. Northern and central California usually have a crop; but we are advised that the prospects are not of the best.

Taking it all in all, it is evident that the California crop will be light. There will be some sage, but not many cars from present indications, and the editor has been over the State pretty well.

The second factor that has an influence on the price of honey is the price of sugar, and whether it will be scarce or not. It has been stated that there is going to be a scarcity of sugar this summer. Already the price is beginning to go up. Candy has taken a sharp advance; and soda-fountains, even in addition to the war tax, are beginning to charge ten cents where formerly they charged but five.

The third factor is that the nation is going dry. Experts tell us that this will make an enormous demand for sweets in all forms. Saloons everywhere are preparing to put in candy and to handle soft drinks. They know that the craving for alcohol can be met by some form of sugar. While liquor is a temporary stimulant, sugar (or, better, honey) is a more lasting stimulant—a stimulant that nature expects and one that leaves no bad after-effects unless eaten to excess. Now, then, if there is going to be such a demand for sugar, surely honey will find its rightful place.

Another very important factor is that the export demand for honey is beginning to pick up. There is no question that an increased export trade will help the honey market considerably.

The price of honey, for the reasons named, is sure to begin advancing — just how much no one can predict. It has evidently reached rock bottom, and should go up; but, as sure as fate, it will not go up to wartime prices.

MORE CALIFORNIA NOTES

Uncertain Times of Honey Flow a Disadvantage. Some Winter Packing Needed. Advertising in the Movies

By E. R. Root

AFTER I had been here some four or five months I thought I knew something about the climate; but this year the time when the honey plants should yield is all mixed up and out of harmony with the climate. The mountain sage and the orange blooms are all jumbled together, both yielding at the same time. Orange, by rights, should have come first about three weeks ahead of the sage. The wild alfalfa and the wild buckwheat—well, they too have forgotten all about the calendar. The blooming things are all blooming this year at all kinds of times. Old residents tell me this is nothing very unusual—that the honey plants in this State come into bloom when they please. It is very unfortunate for the beekeepers when they all come together, as they would very much like to have them come so they could catch a yield from each.

Value of Packing in California.

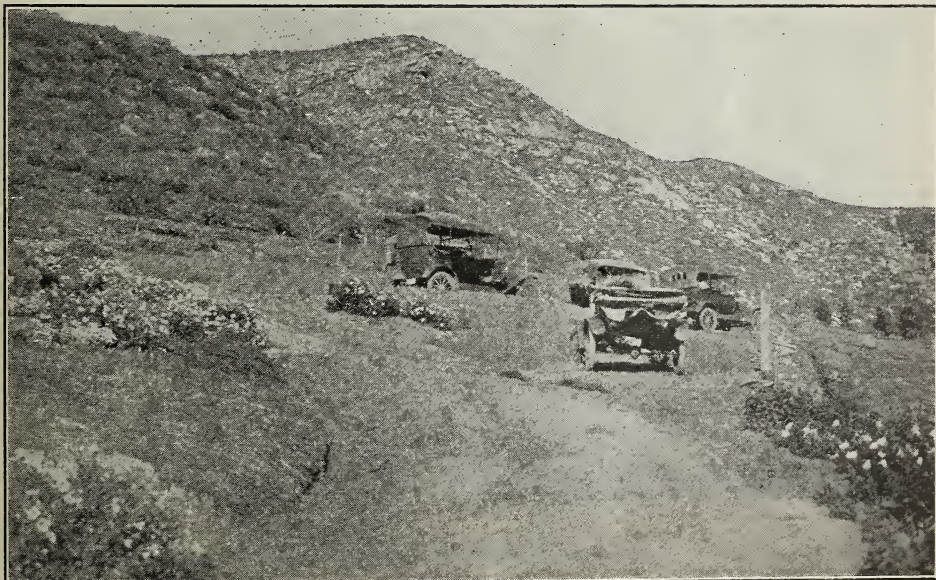
We have sunshine here, and lots of it, but also cool nights and lots of them. Now, this is very hard on bees, as I have pointed out in former articles. This reminds me that my experiments in packing bees this spring worked out magnificently. The little three-frame colonies that I found trying to occupy two stories in January, and which I reduced to one story and packed in paper, have built up to strong colonies and are

now bringing in the honey. I am sure it is best to give the bees protection in California; but just how much and in what form I would not dare to say.

I find a large number of beekeepers, however, are making it a practice to confine their colonies in late fall to one story, putting a couple of sheets of newspaper between the upper and the lower stories, scattering the stores in both stories. In the spring, when the bees need more room, they will gnaw a hole thru the paper, go upstairs, and rapidly build up. I am sure that thousands of beekeepers in the State are losing because they do not confine their colonies to one story during the winter months when the climate here is so treacherous. What is the use of trying to make a colony warm two stories, wasting its energy and its supplies of honey, when it could much more economically warm one story? Taking the State as a whole, I am satisfied that a little added protection would save thousands upon thousands of pounds of winter stores. This is not a mere guess from a one winter's stay, but is based upon a knowledge of many spring seasons thru which I have been. I certainly know that protection in the spring back home pays and pays well.

Free Advertising.

By the way, as some of you may know, I have been trying to get a lot of free ad-



A quite characteristic view in the sage district in San Diego County. All the sage regions are in some of the most beautiful country in the world. A tenderfoot at least can sit down and enjoy the flowers and scenery for hours at a time.

vertising for honey thru the movies and in the newspapers. Thru the latter I have gotten page after page of writeups. In the former, dozens of pictures have been shown of me, and I have been "doctored" and "doctored" so much that the title seems to be clinging to me; but really I am just plain "Mr." and nothing more. Even the movies have got into the chronic habit of calling me "Dr." They have had me featured before 21,000,000 people illustrating the bee-sting cure for rheumatism and making me say that bee-stings are an "absolute cure." Don't you believe it. I never said it. Some of the real doctors will be pulling my ears—in fact, they have already done so in spite of the protests that I did not say so.

The movie people asked me how much I would charge to give them a series of my "stunts." I told them I would charge them absolutely nothing if they would let me feature honey. This was agreed to; but instead they featured my bee-sting cure, made it big and strong, while my honey—why, you can't see it on the screen with a telescope. I complained to the movie people that I objected to having the handle "Dr." stuck before my name, and that I wanted honey featured. "All right," they said. "What would you suggest?"

"We will go out to Eagle Rock in Griffith Park, Los Angeles," I said, "where there are some 40 or 50 colonies in that big rock that can be seen for miles around.

Get your machine ready and photograph me taking wild bees and honey out of one of these holes in the rock."

"Capital!" they said.

To make a long story short, they got me up in the air about a thousand feet high on

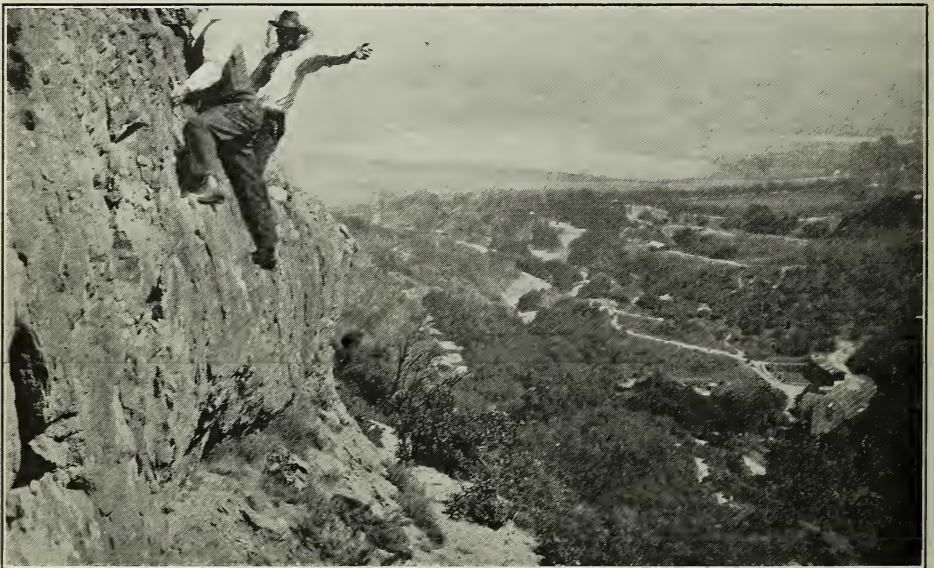


A characteristic bee range of mountain sage in California. The apiary is shown over at the left about halfway up the picture.

that rock. They could not get me up there again for all the advertising in the world.

It was understood that I was to work barehanded and bareheaded, reach into the hole, and pull the honey out. They set up the camera and went to reeling off the film to the tune of a thousand feet.

"That's dandy," they said. "You have



The Editor of Gleanings a thousand feet up in the air ready to take wild bees out of Eagle Rock in Griffith Park, Los Angeles. The picture was taken just before the fun began. The man in the background was one of the Pathe movie men who came up to assist. While the editor did not break his neck, he did lose the top of his head, as will be seen from the picture. The country below represents a part of Hollywood. The editor says you could not get him up on the rock again for love nor money. He was daubed with honey as well as stung. Easy to talk about afterwards, but no fun during the act, while the movie camera below was reeling off the picture.

gotten Douglas Fairbanks outclassed. No, sir; he would never dare go up there where all those bees are."

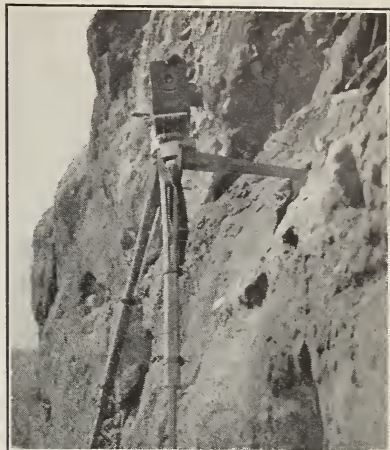
The stunt was not very difficult, because I could light a little piece of paper and stick it into the hole where the bees were. After the paper had burned out, and while the colony was in a roar from the smudge, I took the honey out. Easy enough when you know how, if it hadn't been so high up.

You can see from one of the pictures that I might have broken my neck when I was looking into the beehole to see where the bees and combs were. While that did not happen, I did lose the top of my head. The other man in the picture was one of the movie men who came to help me, and he stood his ground, or, rather, his rock, "until the show was over."

The view in the background is of Hollywood, one thousand or more feet below. "If I had lost my hold, would I have fallen that distance?" No. But I don't think I would have told this story.

The movies have not shown this picture yet, and I have been wondering whether the "stunt" busted the camera; and I am likewise wondering what kind of story there will be about honey, and how many millions of housewives will use honey after they see me taking it out of a rock.

By the way, those wild (?) bees were the finest Italians one could ever wish to see. They were real nice until I began to take away their honey. I was glad when the job was over; and when I went down into the



The Pathe camera that reeled off one thousand feet of movie film, catching the editor while he was in the act of taking wild honey out of the rock, as shown on page 356. It was no small job mounting this camera, but after a prodigious amount of work the thing was located, when the "grind" was begun. Zoological gardens below to wash my hands a big grizzly came up, and sniffed and snorted. I could not imagine what was the matter with him until I thought of the honey that was on my hands. It was evident he was a good judge of good honey, and I was sorry afterward that I did not bring down some of that wild honey covered with crawling bees to see whether he would eat bees and all.



NEARLY a half-century ago, A. I. Root wrote the following significant words for the pages of the then infant Gleanings in Bee Culture: "Per-

THE SPIRIT OF THE HIVE

*Conditions Which Tend to Decrease
or Increase Colony Activity. Strain
of Bees Only One Factor*

By Belva M. Demuth

haps none of us has ever succeeded in inducing a colony of bees to do all they are capable of doing. In our apiary we feel satisfied that fully one-half the time of the bees has been wasted, judging from the way in which new swarms do business." During the half-century of development in beekeeping much progress, undoubtedly, has been made in providing favorable conditions to induce the "bees to do all they are capable of doing"; yet in the hands of experienced beekeepers, even now, some colonies apparently waste one-half or more of their time during the honey flow.

Difficulties in Selecting Breeding Queens.

In our earlier efforts to improve the bees by selecting breeding queens largely from the colonies which had given the greatest yield of honey, we were convinced that, un-

der our management at that time, the yield was influenced more by conditions which depress or stimulate the activity of the workers than by inbred

characteristics. This made the proper selection of a breeding queen difficult, for in some cases colonies known to be of an inferior strain, and sometimes even of medium strength, gave the highest yield because of some fortunate combinations of conditions which stimulated them to do their utmost. The next year this same colony might come up to the honey flow in better condition as to number and vitality of workers, but give only an ordinary yield because of the presence of another set of conditions which tend to depress the activity of the workers during the honey flow. On the other hand, a queen suitable for a breeder may remain undiscovered one year because her colony gave an ordinary yield, while the next year her colony with no more and no younger workers at the beginning of the honey flow but with different colony conditions, might give

the highest yield of the apiary. This makes it difficult to measure accurately the excellent results which have already been attained by years of careful selection, since the yield during any given season is not determined by the number, age, and strain of the workers alone, but also, to a large extent, by conditions influencing the willingness of these workers to do their utmost during the honey flow. Since there is no established name for this important factor in honey production, we have been speaking of it in our apiaries as "colony morale." Its importance in honey production is probably not fully appreciated.

Conditions Depressing Colony Morale.

Stagnation of work, or loafing, during the honey flow is apparently closely associated with swarming. However, some strains of bees are more inclined to loaf than others; colonies having old, failing queens lack the energy of colonies having young, vigorous queens; and the queenless colonies, especially those hopelessly queenless, are not the most vigorous workers. It is also well known that anything which causes discomfort within the hive, such as too much heat, insufficient ventilation, or too small a hive, may start loafing. Insufficient room for ripening and storing of incoming nectar or conditions suggesting the completion of the season's work, such as sealing the honey adjacent to the brood-nest before super work is well under way, are highly conducive to loafing. Any condition within the hive which tends to check or in any way interfere with the freest and fullest expansion of the work within the hive apparently checks the work of the field force, and when the field workers make fewer trips per day to the field their presence within the hive intensifies the discomfort and stagnation of the work there.

Conditions Increasing Colony Morale.

Most beekeepers are familiar with the character of the work done by colonies that have not been checked in the free expansion of their work either previous to or during the honey flow. Such colonies reach the beginning of the honey flow while still on the up grade in their development and expand the volume of work until well into or toward the close of the honey flow. Other colonies thru some fault of environment are checked somewhere in the march of events and fall behind in yield, often even with superior forces at the beginning of the honey flow. With such a marked difference in yield between ordinary work and best work, we are not satisfied merely to prevent visible loafing, but in addition we must provide conditions favorable to the maintenance of the highest possible colony morale thruout the honey flow.

How Field Work May Be Increased.

We have many times observed the increased activity of the field force brought about simply by the addition of an extra set of empty combs to the hive. Thousands of younger bees immediately take possession

of the added combs and begin to repair and clean the cells. Usually within 15 or 20 minutes the rate at which workers are leaving the hive for the fields is greatly increased. Just how long this impetus may last, I can not say; but, since the beginning of a new job within the hive apparently stimulates the field force to greater effort, it has become a policy in our apiaries to induce the beginning of new work within the hive just as rapidly as can be done during the first half of the honey flow.

Beekeepers who have tried the experiment of extracting all the unripe honey every few days from both the supers and the brood-chamber have been surprised to note the increased energy with which these colonies worked. In this case the bees are held continuously to the beginning of the season's job and apparently work with the enthusiasm which accompanies the beginning of a great undertaking. If the same colonies had been given a single super and no additional room during a rapid honey flow, work would have slowed down long before the completion of work in this single super, since after the first few days there would have been no place for new work and no vacant cells for ripening the incoming nectar.

Colony morale, therefore, may be increased by enticing the multitude of oncoming younger bees out of the brood-chamber by giving them a job in comfortable and attractive supers. The drawing out of foundation, the building of new comb, the repairing and cleaning of extracting combs, the ripening and moving about of the raw nectar, and probably other activities within the hive when carried on under comfortable conditions and on an extensive scale, apparently, all tend to stimulate the field force to bring home more loads of nectar during the day. At the same time the absence of the field force from the hive during the heat of the day must add greatly to the comfort of the hive, thus facilitating the work and increasing the morale of the hive workers. These conditions are, of course, more easily maintained when producing extracted honey than when producing comb honey. In either case some modification of the well-known tiering-up principle in adding supers is applicable.

Good Effects of Skillful Supering.

In comb-honey production we usually give each colony two comb-honey supers at the time the colonies are reduced to a single story just previous to the beginning of the honey flow. These first supers each contain a row of bait combs in the middle of the supers to induce the bees to begin work in them promptly, for with strong colonies the morale is easily upset at this time unless thousands of younger bees can be induced to leave the brood-chamber and at once begin work of some kind in the supers. Full sheets of fresh foundation are not always sufficiently attractive, under our conditions, to pass safely the crisis of the first comb-honey supers.

As soon as all the foundation is drawn in

the first supers given and storing is well started, we give a new super containing full sheets of foundation in the sections, placing it next to the brood-chamber. If conditions are favorable this foundation will all be drawn within a day or two, and the shallow cells are then used for the evaporation of the incoming nectar. The bees apparently enjoy spreading out this raw nectar a little in each cell thruout the available comb surface, thus hastening its ripening by increasing the surface of the nectar exposed to the air.

Supers As Evaporating Chambers.

Thus far this recently added super is simply a ripening chamber or an evaporator containing a large amount of evaporating surface. Before it becomes a storage receptacle for more nearly ripened honey we take it from its position immediately above the brood-chamber to be placed on the top of the pile of supers, and at the same time another super with full sheets of foundation is put in its place next to the brood-chamber. This process is repeated as often as necessary to keep the bees busy drawing out foundation, always leaving the super which is nearest completion just above the one in which the foundation is being drawn, i. e., the second super above the brood-chamber.

By doing this, each newly added super affords new work in a most attractive location to entice more and more of the younger bees out of the brood-chamber; the foundation is drawn without checking the progress in the more nearly completed super which is immediately above; a large amount of new comb surface with shallow cells is being constantly added for the ripening of incoming nectar, and comb is being built faster than needed for the storage of honey, thus approximating the more favorable conditions present in extracted-honey production. At the same time, if the honey flow should cease unexpectedly, the last added super can be removed and the super nearing com-

pletion placed down on the brood-chamber; while the supers in which the least work has been done are placed on top to be removed after the unripe honey has been taken down and before the newly built and delicate comb is damaged by being soiled or propolized.

If we could foretell the number of supers each colony would need during the honey flow, we would by this method induce the bees to begin comb-building in that many supers just as fast as they would do so. We would then give them one extra super on top to contain the overflow of nectar during the process of ripening. Since we cannot foretell the number they will fill we try to avoid, on the one hand a too rapid expansion of the surplus room consistent with well-filled sections and, on the other hand, a lack of the stimulation afforded by the room for new work and abundant comb surface for ripening nectar.

When the honey flow is slow or when the nectar is thicker when first gathered the work of drawing out foundation, comb-building, and the ripening of nectar may all be done with sufficient rapidity in a single super. Under these conditions the subsequently added supers may be given on top, for unless the bees enter the newly added supers and draw out the foundation uniformly in all the sections, adding the new supers above usually gives better results. When the honey flow is good we go over the supers every three days to add new ones, remove any that may be finished, and arrange the others in the order which we think will cause the bees to finish them most rapidly.

It is already well within the realm of possibility so to manage that all colonies shall be alike as to number, age, and strain of workers at the beginning of the honey flow. If we can also finally learn to control all the evasive and obscure factors affecting colony morale we may begin to realize the long-dreamed-of ideal of every colony yielding as well as the best.



WHEN, in the course of apiarian events, it becomes necessary for one to enlarge his bee-keeping business beyond the confines of the "home apiary," he is at once confronted with the serious question of the establishment and management of outyards. The average "one-yard" beekeeper feels himself entirely capable of conducting that one yard, but hesitates to tackle another, seeming to think that it will require a new and perhaps complex system for the management

PROFITABLE OUTYARDS

The Principal Requirements as to Location, Equipment and Management. How to Secure Best Results

By J. M. Buchanan

of outyards. However, there is no good reason why a system that gives good results in one yard will not work equally well in two or more.

When launching out into more profitable beekeeping, the first important consideration is the establishment of out-apiaries. The location is an important factor, on which the success of the venture largely depends. The principal requirements are good pasturage, accessibility, protection from prevailing winds, and water supply. Shade is

convenient but not essential. A windbreak may consist of a hill, a piece of woodland, evergreens, buildings, a board fence, or a bank of earth. The beekeeper should acquaint himself with the nectar-bearing flora of the locality, the time and duration of bloom, etc.

The equipment should include at least two full-depth supers of combs per colony, tho three would be better. Shallow combs may be used, but it will require a correspondingly greater number. It is not considered practical to produce comb honey in out-yards, except in certain favored localities.

A small house may be built at each yard for use when extracting, and for storing empty combs and supplies. Our honey-houses are 10 by 12 feet, and 10 feet high, built of matched boards, such as flooring or heavy ceiling; are bee-tight, and have screened windows and doors. They are covered with a good quality of roofing paper. The cost was about 25 or 30 dollars each. At one end is a bench on which are set the extractor and honey-tank. The extracting outfit, with tank, uncapping-box, cans, etc., is moved from yard to yard as needed.

Having established our yards, we must adopt a system of management which is practically non-swarming, and which eliminates all useless manipulations, thus reducing the work to a minimum. Such a system we have evolved after years of experimenting, and it has given uniform success in our own apiaries. We will suppose that



Honey-house at an out-apiary.

the bees were properly prepared for winter, with plenty of good stores, and **wintered in two stories.** This is an important part of our system. The method and amount of packing will depend on the climate and the locality. Thus prepared, the hives are not disturbed until settled warm weather.

At the beginning of the first surplus flow, from locust or clover, we go thru all the colonies, putting the queens down, and being careful to see that there are three or four empty combs in the lower story, and about



One of the out-apiaries, showing a windbreak of cedar trees.

that many, or more, frames of brood in the upper story. We do not take time to find the queens, but run them down by placing over the frames of the upper story a piece of burlap liberally sprinkled with crude carbolic acid. This is allowed to remain for two or three minutes, when the upper story is raised up, and a queen-excluder placed on the lower story. Queenless colonies are broken up. Very strong colonies are given an extra super.

Ten days later another visit is made; and, if we find queen-cells in the upper stories, they are destroyed or used for making increase. We generally make our increase at this time, as three or four frames of ripe brood with adhering bees, from an upper

about over, and the honey well ripened. When removing the honey from the hives, we rid the supers of bees by placing the carbolized cloth over the frames for a minute or two, when nearly all the bees will have gone down. This is about as effective as the bee-escape, and takes far less time. Enough supers for the day's extracting are carried into the honey-house in the morning, and late in the afternoon the empty combs are replaced on the hives to be cleaned up and cared for. The honey is hauled home in five-gallon cans, on a Ford truck.

Before cold weather sets in, we get the bees in shape for winter. There should be a good lot of brood reared in the fall or late summer, as this is a very important factor in



A bank of earth serves as a windbreak for an out-apiary.

story, make an ideal nucleus. This is given a ripe queen-cell from a good colony. At this visit supers of empty combs are given wherever needed. These are placed just above the excluders. The lower stories are not disturbed. Should we find any queens still in the upper stories they are put down.

A visit is made about once a week during the honey flow, and supers given as needed. No time is wasted looking for queen-cells, for a hundred chances to one there won't be any. No complex system of records is kept. At each visit all colonies are left in the best possible condition; but if, for any reason, a colony can not be so treated, a small stone or stick is placed on the hive cover to call attention to it at the next visit.

The supers are left on until the flow is

successful wintering. If there should not be a fall flow of nectar, it may be necessary to resort to stimulative feeding in order to induce brood-rearing. They should have 25 or 30 pounds of sealed honey per colony. More would be better, for, if it is not needed, it will not be wasted.

At the approach of cold weather the extra supers and the excluders are removed, cutting the hives down to two full-depth stories; most of the stores will be in the upper story, where the bees can reach them at any time.

This system of management has given us excellent results, during its use for several years, with the minimum amount of labor, and with less than two per cent of swarming.

Franklin, Tenn.



ANNE LESTER AND DADDY LOWE, BEEKEEPERS



By Grace Allen—Chapter V

ANNE and Daddy Lowe were in the backyard. It was early June. Across great spaces of clover bloom and fragrance came a sound of distant cowbells, from a sun-flooded field a meadow lark arose, singing, and all around was the thrilling wonder of the bees.

"It is almost too beautiful," Anne said once, softly, "It hurts."

"Beauty often hurts," the old man answered. And they went on with their work. "Here's another super for you," Anne was saying presently to her busy workers; "see if you can fill this one, too. There are only eight combs in it, you see, so you can make them nice and plump."

"Look who's coming, Anne!" Mr. Lowe called. It was Theodore, swinging a little car with reckless speed thru the gate. He was in a blue shirt and overalls.

"Anything wrong?" Mr. Lowe asked quickly. But Anne only gazed at his clothes.

"Why Theodore!" she reproached, with mock solemnity. "I never thought I'd see you like this, all—all this way!"

"You've got one on me, Anne," Theodore answered good-naturedly. Then turning to the old man, "Can you come over and help me, Mr. Lowe?" he asked. "I've got a swarm."

"A swarm?" they echoed together.

"You see I bought a hive of bees a few weeks ago," he began.

Anne laughed. "That's why you asked so many questions about bees last Sunday," she accused. "I thought you were being polite!"

"Guilty," he admitted. "I haven't had time to read a word—too many other things to learn at the same time. And there they are—pouring out of the hive—and I don't know—"

Mr. Lowe was moving swiftly, as one who has met unexpected swarms for many years learns to move.

"You haven't happened to clip your queen, I suppose," he remarked as he set a hive in the car.

"No, but I happened to buy one already clipped—anyhow the man said so."

"Good!" exclaimed Mr. Lowe. "Anne can have your swarm for you."

Theodore shook his head. "It might settle in a high tree, mightn't it?" he worried.

"Oh well," smiled Mr. Lowe, "Anne doesn't mind high trees. Jump in, Anne, go on over and hive Theodore's swarm."

"Oh no!" Anne exclaimed. "I can't!"

"Can't?"

"Well, I mean—why, no, of course not, Daddy Lowe!"

"I just hadn't supposed," began Theodore, in some embarrassment.

"Of course you hadn't supposed," Daddy

Lowe agreed quietly. "But she can. Come on, Anne, I'll finish your hive."

And Anne, quickly tossing one mood aside for another, came, bringing her hive tool and smoker. "All right, Theodore," she laughed, "I'll hive your swarm!"

Down the road towards the Clark farm they sped, while Mrs. Lowe, who had seen them go, came out and smiled at her husband. "It looks like the old story, Father," she said, gently.

"Did you ever see a swarm before?"

Anne asked, as they neared Clark's.

"No," he answered, his eyes on the road ahead, "I never saw nor heard such a sight before."

Anne laughed. "And you never heard nor saw such a sound before! I know! We've had two. Isn't it exciting? And beautiful. All the air full of wings."

"It was interesting," the young man admitted, and turned in the Clark gate. He had really been gone only a few minutes, and the dark cluster of bees was hanging quietly on the end of a high branch of a wild cherry tree.

Before Theodore could get round to help her out, Anne had sprung to the ground and started towards the one hive by the fence. There she stooped, walking slowly around, examining the grass closely. "You bring the other hive," she called.

But as she approached, she shooed him back. "Wait," she warned, "or come carefully. You might step on the queen."

"Just where do you think my queen is?" Theodore demanded indignantly.

"Right here!" she exclaimed joyfully.

Theodore smiled reluctantly. "Right here is right," he agreed mysteriously, but was wise enough not to say it aloud. He leaned over Anne, and sure enough, there was the clipped queen bee hopping around in the grass, with a goodly number of her devoted attendants around her.

"Quick, Theodore!" Anne urged. "Set the old hive off to one side. Just anywhere for now. Set the super off first, if it's too heavy."

With his swift young strength he did as she said.

"Now put the new one right in the old place. There, now everything is ready. And only just in time. Look!"

The cluster was breaking, and again the air was filled with bees.

"They're going away! They're going away! You'll lose them!" some one was calling.

Theodore looked inquiringly at Anne. "You won't lose them," she assured him eagerly. "They won't go away without their queen. They have found out she isn't with them, and they're coming back."

Back they came, pouring into the en-

trance. "And that's how beekeepers play a pretty trick on them," Anne explained enthusiastically. "You see they go by exact location, so when they come back they come to the old stand and go into anything that's there. And now—"

Carefully, with slim young fingers she picked up the queen she had been watching, holding her by the wing, and set her down in the entrance where the bees were so steadily marching in. And she ran in with the rest. Taking the queen-excluder off the old hive, Anne put it on the new one and told Theodore to set the super on top and cover it.

"Now!" she exclaimed. "You have a happy swarm, Theodore. They found their queen all safe at home, and somehow, at the same time, that home is changed to just what they wanted when they started out—all empty and roomy and ready for a new start."

"I must say those sheets of beeswax, or whatever you call it—yes, foundation—don't look particularly homelike to yours truly."

"Oh they'll draw that out into comb in a hurry, and in a few days the queen will be laying in it. In the meantime, they'll carry the honey right up into the super. You ought to get some more hives and supers and things right away."

"They're ordered all right, and will probably be here in a day or two. What do we do with this other hive they came out of?"

"Put it wherever you want it to stay," Anne answered.

Theodore placed the old hive in a new location. Then Anne opened it. Lifting out the combs, one after the other, she showed him the queen-cells. "See these queer long cells, Theodore? The books say they look like peanuts. Well, there's a baby queen in each one, waiting to come into her own. When this hive got so crowded that the old queen and part of the workers decided to move out, they made these cells and the queen laid in them. That's how they provide for unbroken royal succession."

She started cutting them out.

"Why ruin their well-made plans?" asked Theodore.

"No use letting so many hatch out. They might swarm again and you don't want that."

"How do you know I don't? I want lots of things I don't get."

"Well you're not allowed to want secondary swarms—the books say you don't—and so does Daddy Lowe."

"Who?" darkly.

"Mr. Lowe. And he comes pretty near knowing," she added, cutting out another cell, and so not seeing Theodore's expression. "He's been keeping bees for nearly fifty years. And he certainly is a dear."

She lifted out another comb. "Here's a

nice, big, good-looking cell," she remarked thoughtfully. "I'm going to leave just this one, and cut out all the rest."

"Is young Lowe a beekeeper too?"

"Jack? They say he doesn't care much for bees." She closed the hive. "Now you have two colonies where this morning you had only one," she said. "That's fine; tho they say you won't get so much honey this way. That's one reason beekeepers try not to let their bees swarm. Daddy Lowe cuts out cells every week or ten days to prevent swarming, but from what I've read maybe I'd do differently. Anyway I'm making increase a way he never has, and I'm as proud as Punch."

"Are there other ways besides this swarming way?"

Anne sighed gustily. "Beekeeping," she announced impressively, "is like what Kipling's Neolithic gentleman said about song writing. Remember?"

"There are nine and sixty ways
Of constructing tribal lays,
And every-single-one-of-them-is-right."

"But the way I'm doing (I'm trying ten colonies)—well, I raised the brood to a third story last month, leaving one comb of brood with the queen down below the excluder; then a second story of empty combs. The next day I gave each top story a nice sealed cell from a colony that swarmed in spite of us. I propped the back corners of these third stories up on little sticks, so after the queens emerged they could get out for their flights. And now most of them are laying up there just as comfy as can be; and when they've filled their hives with brood, I can set them off and have ten nice new colonies. Tho probably there won't be ten, cause maybe some of them won't work out just right."

"Did you catch your swarm all right?" asked a girlish voice. Anne and Theodore turned. There stood a parasoled vision of dainty young femininity, in cool and frilly white, with a half-blown rose in her hair—the only daughter of the Clark home.

"Yes, thank you," answered Theodore, removing his hat to perform the necessary introduction. "Tho it was really Miss Lester who saved the day—and the swarm."

There followed a few minutes of polite conversation; then Theodore helped Anne into the car and they started back. "Oh Theodore," groaned Anne mischievously, "what a contrast we did present, Miss Katherine Clark and I—I in my work togs and she in her primpies! But isn't she sweet!"

"Yes," he agreed, apparently reluctantly, "she really is. And she wasn't exactly primped up, either. She's about like that most of the time."

Anne smiled. Then she talked about her brother the rest of the way home.



BEES VS. SKUNKS

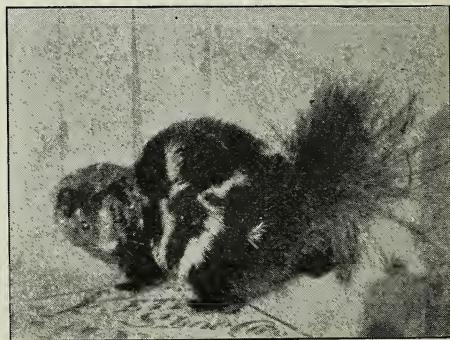
A Nuisance That May Become Very Serious to Owners of Bees Generally

Not until the recent convention of the New York State Association of Beekeepers' Societies, held in Buffalo, was the great and wide-spread damage done to the bee-keeping industry by skunks brought to my attention. Strange why an agency so destructive to bee properties as the skunk should receive so little attention, while so many other obstacles and enemies that militate against the beekeeper in scarcely a greater degree should be the subjects of so much discussion. The opinion may be ventured that it is because the beekeeper whose apiary is infested with skunks has regarded his case as an unusual one and therefore of little public interest. Or is it that skunks are rapidly increasing in number and only within the last few years have become a real menace to the beekeeper? I am inclined to the latter view. In a conversation with one of our state inspectors of apiaries recently he advised me that skunks seem to have increased in numbers greatly during the last few years and that more apiaries are infested and greater damage done by them than formerly.

The skunk may justly be regarded as a very serious enemy of the bee, as the discussion of the question at the convention proved. Audible smiles, jokes, and gibes at the expense of this quadruped of odorous fame gradually gave way to serious discussion as member after member testified to its regular nocturnal visits to their apiaries at certain seasons and the damage done. It developed that one member, Eugene E. Sutton, had killed a number of skunks that had been infesting his apiary, saving the skins of some of them, and had been arrested for alleged violation of the New York State conservation law in that he had so saved such skins. So much interest was shown in the discussion that an effort was made to arrive at the approximate damage from skunks that beekeepers are now sustaining. A list of representative beekeepers was secured, including many of the most prominent and well-known apiarists of New York State, showing the number of colonies of bees owned by each, the number of skunks they had killed in their apiaries, and the estimated damage done in each of such apiaries during the past season. The data thus secured show that 15 apiarists owning 4,913 colonies of bees had actually killed in and about their apiaries 176 skunks and had sustained damage from their depredations estimated at \$2,665. Assuming \$9.00 per colony to be the net average income of the colonies listed, which seems

liberal, we have an average loss to the apiarists of six per cent that is directly traceable to the skunk. The list showed that many of the individual losses were far in excess of the average, and undoubtedly small apiaries in localities badly infested would sustain a greater proportion of damage than would the larger apiaries. If the skins of these 176 skunks had all been saved, they would have to be sold for over \$15.00 each to compensate for the damage sustained by the beekeepers. These figures may be taken as an approximate estimate of what it is costing the beekeepers of New York State in order that skunks be conserved.

That the skunk nuisance is still in its infancy is the opinion of competent observers. It multiplies rapidly and litters of six or more are not uncommon. With its habit of



His skunkship.

burrowing deep in the ground or secreting itself far from reach under buildings and in other retreats, the added protection given it under the conservation laws of different States will inevitable result in a greatly increased number. Then, too, no other animal is better fitted by nature to perpetuate itself than the skunk, for it is dreaded by animals and men alike.

In conversation with numerous beekeepers I find the opinion prevalent that the skunk is a real menace. When we consider that its ravages are mostly on cool nights in early spring and during the fall, the destruction it accomplishes is easily understood. By scratching at the hive front to attract the bees outside the hive it is able, in a short time, to make a meal of bees which, in early spring, are worth two or three dollars a pound, which is rather expensive skunk food. It works persistently, night after night, at the same hives, eventually consuming so many bees as to deplete the colony to the extent that it is incapable of covering and nourishing its brood, often resulting in



FROM THE FIELD OF EXPERIENCE



dwindling to death or becoming so reduced as to be of no value as a surplus honey-producer for the season. In the cool nights of fall the activities of the skunk are again renewed, and frequently colonies are so far depleted of bees as to render it impossible to bring them safely thru the winter. Beekeepers whose apiaries are infested with skunks may attribute a part of their winter losses to their depredations.

The provisions of the conservation law in New York State in reference to skunks are as follows, viz.: "Skunks may be taken either in the day time or at night and in any manner, but they shall not be taken from holes or dens by digging, smoking, or the use of chemicals, and they may be possessed from November tenth to February tenth both inclusive. Skunks which are injuring property or have become a nuisance may be taken at any time in any manner; but the skunk or any part thereof so taken shall not be possessed, bought, sold, or trafficked in."

The skunk's well-earned reputation for injuring property and becoming an intolerable nuisance is recognized in this law by the provision allowing them to be killed "at any time and in any manner" when they do so injure property or become a nuisance. The skunk is the only animal mentioned in this conservation law that for any reason is outside the law's protection.

The skunk is a nuisance *per se*, and I predict it will become increasingly so as long as fostered by conservation. Protecting it benefits a few sportsmen, trappers, and fur dealers; and for this the State, thru its beekeepers, is made to sustain a loss many times the value of the skunks. Conservation, in its broad and accepted sense, means the preservation of that which is valuable. If it costs more in value to conserve an object than that object is worth, then it is plain that the opposite of conservation has been accomplished.

But as long as the law is in force all good citizens will wish to have it respected. Moreover, the surest way to obtain the repeal of an objectionable law is to enforce it. It is to be hoped that the enforcement of this section of the conservation law will speedily create sufficient sentiment against it as to result in its repeal.

Kenmore, N. Y. Orel L. Hershisier.



SWARM PREVENTION

Warning Against the Dependability of Some Highly Recommended Plans

If anybody contemplates trying the so-called "Sheppard plan of swarm prevention," as given on page 39, January Gleanings, my advice would be to try it in a limited way at first. Briefly, this plan is

that of putting the queen with a little unsealed brood in the second story of combs or foundation over a queen-excluder, eight or nine days later tearing down all but one queen-cell below the excluder; and, after the young queen below is mated, removing the old queen; and eight or nine days later destroying the queen-cells above.

A number of years ago I worked out a similar scheme for hatching queens below the excluder while retaining the old queen above. At that time I could see no reason why it would not work out in practice. In fact, I had so much faith in the plan that I tried it with about 50 colonies. In nearly every case the young queen disappeared together with a goodly number of the bees. I have since learned from experience that if a queen-cell is permitted to hatch with a laying queen in the hive, the bees will nearly always swarm if weather and other conditions are not unfavorable. If the old queen is clipped or confined within the hive, the virgin queen goes with the swarm. Likewise, if cells are allowed to hatch above the excluder, the young queens often squeeze thru and lead off a swarm. The owner examining the colony later, finding brood in all stages and the old clipped queen on duty, concludes that there has been no swarming. Here is an illustration:

At an outyard brood had been placed above excluders. Being unavoidably delayed, I arrived a day behind schedule time for removing queen-cells. Soon after reaching the yard, a swarm came out, and a few minutes later a second colony swarmed. In each case the clipped queen was found in front of the hive and caged. In hiving the two swarms three virgin queens were observed to run in with the bees of the first swarm and two with the second. The combs of the two colonies were then carefully examined, and it was found that no queens had emerged from cells below the excluder in either case, but three and two respectively from cells above the excluder. There was no possible chance for these virgins to escape from the parent colony except by passing thru the queen-excluder. I have many times observed swarming under like conditions as probably have hundreds of others, and yet frequently articles appear which seem to imply that it is a safe plan to allow cells to hatch when separated from the laying queen by an excluder.

I agree with Dr. Miller when he says, "Breed from the best and eliminate all queens that fall below the average," but it is a wise beekeeper who can surely determine which is best. With due apologies to my venerable namesake, it certainly is not always the colony which stores the most honey. In the above case, a "let-alone" beekeeper, coming around a week or so later, and finding no evidence of swarming, would

FROM THE FIELD OF EXPERIENCE

have been ready to declare the queen "slow" and a fit subject for decapitation, while an inferior queen because of a greater population and a preponderance of stores would have been permitted to survive and propagate her kind.

An orthodox statement that will bear scrutiny is that a colony with a clipped queen will kill her after one or two attempts at swarming. Clipped queens frequently disappear at swarming time; but, in my opinion, it is usually because the bees swarm unobserved and the queen fails to find her way back. It must be remembered that a queen with wings clipped on one side only will sometimes get as far as two or three rods from the hive.

While in the critical mood permit me to have one little poke at friend Holtermann, regarding his "Best and Cheapest Way to Requeen," told in June Gleanings, last year. Quoting A. D. Hall, Watertown, N. Y., he says: "If he wanted a queen from the colony, he would go to the colony, kill the queen, and remove every cell but one of the best. In that way he overcame the swarming impulse and saved time and manipulation." I hope Friend H. will forgive me, but I rise to remark that no better scheme could be devised to cause a colony to swarm. I know, for I tried it many times in my days of acquiring "experience." My notion was to destroy the inferior queen and cells and to give a cell from the best stock. At least nine times in ten, may I not say ninety-nine times in a hundred, a new batch of queen-cells would be started and the bees would swarm either at the time of the queen's mating or when the cells were being capped. If any failed in their duty, they swarmed when the new batch of queens emerged, some of them several times in order to be sure that their program was properly carried out.

"Best Swarm-control Plan," by Iona Fowls, June Gleanings, 1918. I have used this plan the last eight or ten years with several hundred colonies, and have for the most part found it very satisfactory. However, about five to fifteen per cent of the colonies so treated will start queen-cells on the one frame of brood below the excluder, depending on the season. Also, if the clover flow continues more than three weeks, as in 1918, the queen again fills the brood-chamber and swarming is apt to occur; likewise, if there is an August flow. To manipulate several hundred colonies in July, with 150 pounds of honey in the supers and a "barrelful" of bees, is something of a job, and it is here that some of us fall down. If cells are started at this time, it is preferable to remove all brood, using it to build up nuclei for the fall flow.

For comb honey there is probably nothing better than the "shook swarm" method,

but don't make the mistake of leaving part of the brood. Remove **every** cell and use mostly foundation below.

Valparaiso, Ind.

E. S. Miller.

[The percentage mentioned in the next-to-the-last paragraph may be cut down considerably. When we first used the swarm-control plan given in the June, 1918, Gleanings we had an experience similar to Mr. Miller's—some colonies building queen-cells in the lower story. We noticed many young bees (nurse bees and cell-builders) left in the hive below at the time of manipulation, and these we came to believe the true cause of the trouble. Since then we have taken pains to get these bees out of the lower and into the upper story where they may build queen-cells to their hearts' content. Below we have only field bees that have no inclination to start cells. This we have found a much safer arrangement.—Editor.]

PREVENTION OF SWARMING

This Beekeeper Says He Has Not Seen a Swarm in Two Years

The proper time to manipulate a colony to head off swarming is before the flow starts. In doing this I proceed as follows: By May 20, or as near that as possible, I equalize brood according to Dr. Miller's plan, so that each colony will have at least five brood. By a "brood" I mean a comb at least two-thirds full of brood.

One thing that will encourage swarming is the inequality of the colonies in the amount of brood they have early in the season. Suppose one of the best ones has six or seven brood by May 20, and they are not reduced. I would almost guarantee they would swarm, perhaps before the flow. In other words they would grow to storing strength altogether too soon. Now, some of my hives are eight-frame and some twelve-frame. We will take the twelve-frame. If they have plenty of stores, and honey is coming in, they are going to increase right along and have six brood. In a few days there will be brood in two more. I immediately give another story of combs. They are, as a rule, safe now until the flow starts—about June 20. (In the case of the eight-frame hives it may be necessary to give three stories before the 20th.) At this time we may have from eight to twelve brood. We now arrange for the storing of the crop. I first take nearly all the brood from the brood-chamber except two or three combs which contain the least brood, filling the rest of the brood-chamber out with black empty combs, put on the excluder, on top of this a body of empty combs, and on top of this the body containing all the rest of the brood. In a few days, if the weather



FROM THE FIELD OF EXPERIENCE



is favorable and honey is coming in with a rush, I look at the story of empty combs. If the bees have made a start in these combs the hive is closed up as it was, except that another body of empty combs is added on top and thruout the season. As soon as I see any start in storing in this top story another empty is added.

Never at any time do I take off the stories and examine the brood-chamber for indications of swarming. It has never been necessary in my experience.

With the above plan (which has been mentioned many times in Gleanings) I have had a hundred colonies in the home yard with never a swarm, and I do not believe there was one at the other yard. In two years I have not seen a swarm—only the one or two runaways that usually come each year. It may be there will come a year when they will swarm in spite of this management; but I am not going to believe it until I see it.

Geo. Shiber.

Randolph, N. Y.



ANOTHER SWARM PREVENTION

Brood-Chamber Is Placed Over Shallow Frames Having Foundation Starters

Having used S. Simmins's method for a number of years, I can absolutely affirm that, unless some ridiculous manipulation has been made, the bees positively cannot swarm, and I have always found that from hives arranged in this way the honey produced is always far in excess of that obtained by the more usual methods of supering.

In this swarm prevention plan to which I refer, the brood-chamber is raised and under it is placed a super of shallow frames, fitted only with $\frac{1}{4}$ -inch starters of foundation.

Frames from which the combs have been cut will also answer or even top-bars only, provided a trace of the old comb is left adhering to the under side. Above the brood-chamber may be used a queen-excluder and then the extracted honey supers of drawn comb piled up in greater or less numbers as the flow of honey requires.

The whole principle of the arrangement depends upon the fact (I think generally acknowledged) that bees will not swarm from a brood-nest of uncompleted combs. At the same time proper and ample ventilation, without draft, is provided under the cluster.

Now, if the beekeeper for any reason neglects to give sufficient super room, the bees, instead of swarming, merely bulge down into the lower compartment and work out the combs (and in my experience store honey therein—no brood). If, on the other hand, the supers are properly attended to,

no self-respecting colony ever draws out the under combs at all, but merely uses the space provided as a sort of entrance hall, wherein to sit and meditate on wet days or at other times when nothing is doing.

By this method, it will be noted that the brood-nest is not disorganized, nor is it necessary to give the queen a fresh start by separating her and her nursery by one or more tiers of super combs. Manipulation, in fact, is reduced to a minimum and moreover the bees work straight ahead in the supers, in the same direction in which they began, without being required to fill in unnatural "vacuous" spaces left in upper stories by the hatching out of misplaced brood.

Strictly speaking, this method does not "prevent swarming," it rather prevents the desire to swarm, which are two entirely different things; the former necessarily being a more or less harsh and unnatural proceeding, the latter more nearly conforming to nature.

Bees seldom or never swarm from the huge "let-alone" hives, I believe. The same thing may be said of wild bees living in tree trunks and between house walls—provided always that the space at their command is unrestricted. Why? Because their combs are never quite complete or at least are always capable of further extension to meet the needs of the swollen population. Similarly, in the hive arrangement just described, the bees are led to believe that their combs are still capable of extension so that the desire for swarming never enters into their calculations.

The one obvious drawback to this method is that it more or less precludes the possibility of mid-season increase. But, as most agree, the proper time for increase is before or immediately after the honey flow, this difficulty cannot be allowed to have much weight.

Now as to actual results. I live in a locality where beekeepers consider they have done well if their colonies average 40 to 50 pounds in a season; but since adopting the above arrangements I consider it a poor season when my hives yield me less than an average of 150 pounds of extracted honey in a season.

The above-described method is only a variation and enlargement of Dr. Miller's two-inch floor-boards with a false bottom of slatted boards. It is indeed difficult to find anything new under the sun—even immediately under it.

C. L. N. Pearson.

Shalbourne, England.

[Altho we would not expect three times as much honey, we believe the plan worth investigating and intend trying it out on a small scale ourselves this summer.—Editor.]

ON page 290 the types make Mrs. Demuth say that there is less tendency to late swarming "if the bees are compelled to build new combs in the brood-chamber from starters only." I can hardly believe she would favor anything less than full sheets of foundation, for fear of too much drone-comb. [Those are Mrs. Demuth's words. The types are innocent this time.—Editor.]

* * *

Stancy Puerden, I'm in sympathy with you when you speak so vehemently of "man's refined, demineralized, devitalized sugar"; but don't be too sure that a "natural apple" may not equal a Baldwin. The Baldwin is nothing but a "natural apple" selected out of many thousands of natural or seedling apples, and any day another seedling may turn up still better than a Baldwin.

* * *

In a mention of the Miller plan of getting queen-cells, page 318, occurs this: "Remove a comb from the hive of the best breeder and replace with this prepared frame." Some one who tries that will be disgusted to find that the chances are that the frame will be filled with drone-comb and honey. The remedy is to have the best breeder in a nucleus.

* * *

Interesting is that statement of L. L. Andrews, page 309, May Gleanings, that 100 colonies of bees used 20 gallons of water in a day. That seems an enormous amount, being a trifle more than 1½ pints for each colony. One wonders just a little whether they would keep that up day after day, or whether, having been hard up for water, they would take an unusual amount the first day, and then slack up afterward.

* * *

Grace Allen, you knew mice had been in your hives because you found the remains of one there. You might have had another evidence. Next time you suspect mice, examine the dead bees. Each one will have a round hole on the upper part of its thorax, where I suppose a mouse had bitten or licked out the contents of the thorax. If you close the entrance of a hive with wirecloth having three meshes to the inch, it will allow free passage for bees, but not for mice.

* * *

Something out of whack on page 299. The text seems to show the cold arrangement of combs, but the cut shows the warm arrangement. The text says the entrance of the nucleus "will be at the end of the hive opposite the body entrance," but the cut shows both entrances at the same end. [The legend under the cut stated that in ad-



dition to the arrangement shown, a piece of tin or zinc covers all but a few inches on the right side of the excluder. The double dotted line and lower

arrow were intended to indicate an entrance at the opposite end of the hive, but apparently do not give that impression.—Editor.]

* * *

On page 293 it is advised to strain bees thru a queen-excluder, and the heading says it "saves time and eye-strain, and works without fail." It's a good thing in a stubborn case where you want to find the queen "right now," but as to saving time in ordinary cases—not "in this locality." In a usual case of finding 50 or 100 queens, it will be done in one-third of the time without the strainer. [Yes, but your bees are not of the flighty, scary, unfindable kind.—Editor.]

* * *

Two marvels on page 316: D. M. MacDonald gives as one the lack of delight in labor of any kind in a worker deprived of antennæ; Iona Fowls gives as another the lack of delight in much of anything of a human being deprived of a leg. Play fair, Iona, play fair. The cases are not parallel. My good friend, the Scotch schoolmaster, may come back at you with another marvel: a queen deprived of a leg goes right on taking interest in her work, just as if no leg had been lost, altho the loss of the leg causes likely as much pain as the loss of the antennæ. Your human loses interest because of the severe pain, and the interest will come back when the pain is over. The interest of the bee is lost not because of pain (for then the loss of a leg should cause the same loss of interest) and that interest will never return. [Yes, we will be fair. We admit that we, together with Mr. MacDonald and Dr. Miller and various scientists, that have been discussing the subject, know but precious little about the sense organs of bees. Won't the others please admit the same?—Editor.]

* * *

On page 322, occurs a question which is, in substance, "How can a queen become a drone-layer if her spermatheca contains more spermatozoa than the number of eggs she lays in her lifetime?" And the answer is in substance, "She can't." But we all know she does, and only too often. It may be said—and rightly—that that "She can't" means that she cannot become a drone-layer thru the exhaustion of the spermatheca. That still leaves the question, "If not thru such exhaustion, then how?" No other way is suggested, and I'm sure I don't know of any. Moreover, begging Miss Fowls' pardon, I may quote Cheshire as saying that the supply of spermatozoa does ac-

tually become exhausted, or practically so. Speaking of drone-laying queens, he says: "Many of these ancient dames—discarded because they no longer yielded workers, or only a few, amidst many drones, and these produced in worker-cells—have been sent to me for dissection, and I have invariably found the spermatheca quite denuded of its spermatozoa, or only containing such a miserable residue as to clearly show that the eggs could, at the best, be but occasionally fertilized." (Bees and Beekeeping, Vol. I, page 227.) As to the *how* of it, I may be allowed to suggest: Nature is lavish in her provisions for safety of fertilization: where a single grain of pollen is needed on an apple tree, hundreds are provided; for every drone needed a thousand are born, and the only wonder is that she is not more lavish in the matter of spermatozoa, providing less than a dozen for every one really needed. (Cheshire says "a prolific queen will lay, during her life, 1,500,000 eggs," and the spermatozoa "are, probably, not usually more than 4,000,000 in number." (That averages less than three spermatozoa for each egg.) Well, altho only a single spermatozoon may enter an egg, analogy would teach that for safety two or more extra ones are extruded, and so it is not so hard to see that even with 4,000,000 present the supply may become exhausted, making the queen a drone-layer. [Of course, anyone who has ever worked with bees to any extent knows that good queens sometimes become drone-layers; but we had supposed this was caused by the queen receiving too few spermatozoa or by the queen becoming so worn out that it was physically impossible to fertilize the eggs. The suggestion made by Dr. Miller, is, however, doubtless correct. We find it also given by Cheshire, Dr. Phillips and others. According to Breslaw, the spermatozoa are extruded in bundles of about one hundred each, upon the eggs as they pass from the vagina.—Editor.]

* * *

B. F. Kindig, an old adage says, "Death loves a shining mark." So do I. So I'm glad to have you for a mark while I take a whack at an error that prevails even among our best beekeepers. You say, page 309, "Such beekeepers could without great trouble maintain a drone-rearing colony headed by their best queen. The next best queen could be used for queen-rearing." You do well to emphasize the importance of drones, but have fallen into the error I speak of by assuming that the best queen will rear the best drones. I am hardly in a position to throw stones at others, for I am only a comparatively recent convert to the truth, and for many years made it a practice to encourage drone-rearing in a few of the best colonies and to suppress them in all others. When speaking of a best queen, I assume we mean the queen whose workers do the best work.

A worker gets her characteristics from her mother and also from the drone with

which her mother mated. Not so with the drone. He inherits only thru his mother, and is not one whit affected by the drone with which she mated. In fact he would be precisely the drone he is if his mother had not mated at all. Just as you say, "They inherit all of their characteristics from their mothers." He has no father but is the son of his grandfather. We will not go far wrong if we keep in mind that thru his mother the drone inherits qualities from his mother's mother, plus qualities from the drone with which his mother's mother mated. In other words, for his status the drone harks back to his maternal grandmother after she had mated. In a few words, the best drone is the drone with the best grandmother.

Suppose two virgin sisters, A and B, just alike in every respect. A meets with the best drone ever, and B with the worst ever. A will rear good workers, and we shall call her a good queen. B will rear poor workers, and we shall call her a poor queen. Yet the drones from the poor queen will be just as good as those from the good queen, **because they have the same grandmother.**

You say rear drones from the best queen and queens from the next best. That would not give you quite the best queens, and it might not give you the best drones. Here's what might be. C, the best queen, as a virgin, was of stock not quite so good as D; but she met a drone so much better than the one D met, that as a laying queen she is the best in the apiary. Yet C's drones are not as good as D's, because D's have the better grandmother.

Well, if we are not to rear drones from the best queen, what are we to do about drones? **Don't do anything.** Just rear queens from the best queens and let the drones take care of themselves. You will have some poor queens, for some of your queens will meet scrub drones from outside. But if you keep rearing queens from the best there will be none but superior drones in the apiary because they all **have superior grandmothers.**

To those who have trouble because of predominance of black blood around them you say, "Let me suggest the rearing of such an abundance of first-class drones that young queens of the territory gradually may become Italianized." That will not be easy if you rear drones only from your best queen; but with my way it will be easy. And please keep in mind that with the way I advise **the poorest queen in the apiary will have just as good drones as the best, and all on account of the grandmother business.** [These remarks are certainly of great value and we are very glad to have Dr. Miller explain what he means by a "best queen." Now, if Mr. Kindig would also give us his definition, perhaps we would find little disagreement after all. We wonder, however, if it would not be a little more accurate for these paragraphs to end with the word "grandparents" rather than "grandmother?"—Editor.]

WE are indebted to E. R. Root, page 284, May Gleanings, for explaining "Those Confusing Symptoms" of European foul brood. I have to confess that after years of inspection work I find some cases that we do not feel at all sure as to which kind it is. This "new light" will be helpful.



SIFTINGS

J. E. Crane

I have to confess that after years of inspection work I find some cases that we do not feel at all sure as to which kind it is. This "new light" will be helpful.

"I never knew any person to go into the beekeeping business purely for what he could get out of it that made a success of it," says Major Shallard, page 321. I believe that rule holds good in this country as well as in New South Wales.

That article on pages 224 and 225 by B. F. Kindig gives us a new idea of the Northern Peninsula of Michigan. I had supposed it on the outskirts of civilization or even beyond it, but he makes it a most decidedly interesting and fascinating section to a beekeeper.

It is to be hoped that every young beekeeper will most carefully study that symposium of noted beekeepers, commencing on page 215, on "Early Spring Management." There is money in it. On no one thing does profit or loss more depend than on spring management.

Directions for moving bees on page 325 are all right if you have the time; but it is much less trouble to move them at once to where you want them. Then place a broad board in front of the entrance and after a few days remove it. We have little trouble when they are so treated.

We are told on page 319 that a Mr. Warren of Nevada, who owns 1,000 colonies of bees and raises alfalfa seed, produces nearly four times as much seed to the acre as another alfalfa seed-grower who keeps no bees; and yet we have been told repeatedly that honeybees are unable to fertilize the alfalfa blossoms. A mistake somewhere.

Necessity is said to be the mother of invention; and that improvised queen-sieve made by tacking an excluder to the bottom of a super, as described by Geo. A. Brill, page 293, will answer the purpose very well and prove of great value when we have forgotten to take anything with us to an out-yard for this kind of work. I have used it.

The discussion of the large and the small brood-chambers goes merrily on. So far as I can see, a two-story 8-frame Langstroth hive is of almost the same capacity as a 10-frame Dadant Jumbo hive. Each has some advan-

tages over the other, it seems evident. If one has an eight-frame Langstroth, it is easily made into a Jumbo by adding another story. If one has a Jumbo

he can have a smaller hive by using division-boards or dummies. From October till May an eight-frame Langstroth seems preferable to a larger one. If a larger hive is wanted during the summer, we can add as many stories as we like.

Edwin O. Gunn says, page 321, that bees will build their combs down to the bottom-bars better when built out above the brood-chamber. There may be something in it, altho, as a rule, I do not find such combs built down to the bottom-bar. However, there is no better place to have combs of foundation drawn out than over the brood-chamber.

Grace Allen in reporting the address of Prof. Jaeger at the Chicago convention speaks of the abundance of honey gathered from the Balkan mountains, chief among them being from wild thyme. This plant has come in some places in southwestern Vermont, enough to make most excellent pasture for bees during August, and may prove of considerable importance in the future.

It was with more than usual interest that I read Mrs. Puerden's description, on page 303, of "Cream of Honey." It looks as tho there might be in it a good deal of value to beekeepers. Granulated honey is often too hard to spread on bread; and liquid honey unless spread very thin (thinner than I like) will run, and, before we know it, is on our fingers. Oh, dear! then we wish there was no honey. Now if this Cream of Honey will remain creamy, it is something to be thankful for; besides it will make an opening or a market for a large amount of our extracted honey that now depresses the market. Cream of Honey, or granulated honey, is of milder flavor than before the change takes place; and, as a result, suits many persons who do not care for liquid honey. My better half recently carried some real granulated honey to a tubercular invalid across the way, and he was greatly pleased with it. "Never heard of such a thing before," said he, and his wife came over to buy some of that solid honey to send down to the hospital. There seems to be something needed to make the use of honey more popular or common. It seems to be about the only food that is going down in price at the present time. With butter selling at 75 cents a pound in our larger towns, it seems queer that extracted honey is quoted at from 16 to 20 cents wholesale. It certainly looks as tho the great mass of people are not informed as to its value.

IF a modern Robinson Crusoe should find the advertising pages of a current number of any household magazine on the beach of his private island

estate, he would not need the reasoning powers of a Sherlock Holmes to deduce the fact that American housekeepers have a problem to solve. To prove my point, let me make just a few quotations from the advertising pages of a recent household publication:

"Does a servant's work. It is a veritable servant in the kitchen."

"A dependable servant."

"In the house that has my cooker there is no servant problem."

"A servant at three cents an hour."

"It serves your home, saves your time."

"It is the housekeeper's aid."

"Your laundry problem completely solved."

"Makes ironing a pleasure and saves your time."

"Cleans your whole house thoroly clean."

"Without scrubbing, without scouring, without any of the old, laborious methods."

"Does in a couple of hours the work that used to take the best part of a day."

The above quotations were in most cases taken from full page advertisements with elaborate illustrations of the labor-saving devices described.

In the same magazine are advertised attractively illustrated prepared foods. There are biscuits and cakes in packages, ready to serve breakfast foods, self-rising pancake flours, dried fruits and vegetables, combinations of dried vegetables for soups, canned meats, vegetables and soups, canned, condensed soups, desserts requiring a minimum of time in preparation, condensed, evaporated and even dried and powdered milk, especially manufactured pastry flours and wonderful baking powders. Really I haven't mentioned half the largely advertised foods.

With many food advertisements there are published recipes accompanied by most appetizing-looking illustrations and the housekeeper is often invited to send for a free book of recipes.

In cleaning and straightening some shelves a few days ago I came upon an old number of the same magazine from which I made the above quotations. It was of the year 1902, and it was interesting to note the contrast between its advertising pages and those of the current number. Seventeen years ago advertising pages were not particularly attractive. Very few household labor-saving devices were advertised and almost no foods. Apparently the difficulty of obtaining competent household help was not nearly as great then as now, altho I well

OUR FOOD PAGE

Stancy Puerden

remember we spoke of it as a problem even then.

But it is not alone in the advertising pages that we find attempts at a solution of the prob-

lem of help in the home. There are many fine articles in the reading pages, interesting, inspiring, and generally practical. But occasionally articles appear which I cannot help suspecting are written by men, by women who have gained their knowledge of cooking and kitchen work mostly at a desk, or by women who have lived all their lives in a large eastern city and cannot comprehend that the majority of their readers live amid conditions entirely different with altogether different problems to solve.

One writer tells us that in the future we must depend upon the eight-hour servant who lives outside the home, and if we cannot afford her eight hours a day at the present high wages (I almost called it salary) we can have her for a stated number of hours and allow her to work in some other home for the remainder of the time. That would be quite ideal. I once had an opportunity to try the plan and liked it very much on account of the greater privacy of the family life. But in the average small town I believe it is fully as difficult to secure the eight-hour assistant as one who lives in the house, while on the farm it is practically impossible, and who needs help more than the farmer's wife?

Another writer informs us that the private house of the future will have no kitchen, that instead of buying the raw food it will all be cooked and delivered at our doors. This community kitchen plan has been tried with more or less success in a number of places, and its promoters are most enthusiastic over it. However, so far I believe it has never been carried out except in large cities or suburbs where wealthy people live. To me it sounds extremely like boarding-house fare in the home, and I cannot imagine your children or mine growing enthusiastic over it. When that big college boy comes home for a week end, would it seem quite like home to him if he couldn't rummage in a cupboard stocked with his favorite dishes, home-prepared?

A recent interesting lecturer, a man, made the assertion that the keynote of the future would be co-operation instead of competition, that the movement would extend even into the homes. He agreed with the last-mentioned writer that all cooking would be done in central kitchens, just as our baking and washing are done in central bakeries and laundries. I wanted to interview his wife and find out if the bakeries and laundries really relieve her of all baking and washing. I imagine with the aid of her gas oven she produces sundry toothsome dainties

which that lecturer enjoys, and any woman can guess that at least her two little girls' dainty dresses are surreptitiously "done up" at home. Also that lecturer has been entertained in our home and I can testify that his appetite for home-baked goods is very good indeed. By the way, did you ever know a man who did not appreciate bread of home manufacture?

One writer goes so far as to predict that in the future, I don't know how distant, woman's work will be no more connected with the home than that of man, that she will specialize on whatever she likes to do after her children are beyond babyhood and can be left to the care of others, just as if children did not need a mother all thru their youth. That scheme sounds dismal to me. I happen to like my present job. No, Mr. or Mrs. Would-be-solver-of-the-help-problem, what we women want is not emancipation from all housework, but some of us would like shorter hours and more freedom to enjoy life out of doors. Also the young expectant mother should be relieved of worry concerning help in her time of need.

Now that I have expressed what is on my mind thus freely, may I go a step further and say that I wish some of these writers would stop talking about the drudgery of housework. Show me the worth-while work that has no drudgery connected with it. This talk of the drudgery of housekeeping is enough to make any girl think she dislikes housework.

As to cooking, with the present resources for cooked foods afforded by the average country town, if we housekeepers are to feed our families well and wisely I believe we should still prepare the greater part of the food in the home kitchen.

THE May number of the Ladies' Home Journal devotes a whole page to telling about the food value of yeast, and the substance of it is that it contains the vitamin "water soluble B," the kind which is believed to be in honey. McCollum of Johns Hopkins University, the man who has conducted such long and exhaustive series of experiments with reference to the class of vitamins called "fat soluble A" is inclined to minimize the necessity for "water soluble B" for the reason that it is found in nearly all foods in the natural state. He is the man who named the foods rich in "fat soluble A" the protective foods. These foods are milk and eggs and the leafy vegetables. "Fat soluble A" is also sometimes known as the growth vitamin, altho McCollum apparently does not approve of the word vitamin.

But the writer of the article on yeast, Philip B. Hawk, Ph. D., Professor of Physiological Chemistry of the Jefferson Medical College, Phila., tells of a series of experiments proving that the addition of yeast to the diet of white rats produced remarkable results in promoting growth, and that

without the yeast with its "water soluble B" the rats would not grow altho the diet was otherwise complete even including the "fat soluble A."

When learned scientists do not agree what shall we poor laymen believe? At least we beekeepers can rejoice that new research is demonstrating the importance of the vitamin contained in honey.

In order to use yeast I am starting the recipes by giving a roll recipe. It makes very good rolls, and by omitting all the shortening but 1 tablespoon it will make good loaf bread, two small loaves.

The reason the recipe for butterscotch pie is repeated is to correct it. I sent it to the printers last month after seeing and correcting the rest of the copy. The patient proofreader assures me that the sugar was in the first proof, but somehow it was afterward lost and no one can account for it. It looks to me as if the devil must have taken it, I mean, of course the printer's devil, or just possibly a beekeeping editor censored out that brown sugar because it wasn't honey.

ROLL RECIPE.

1 cake compressed yeast	4 tablespoons melted
1 cup milk, scalded	shortening
1 cup warm water	3 pints sifted flour
	1 teaspoon salt

Soak the yeast cake about half an hour in $\frac{1}{2}$ cup of the water, lukewarm, and then add to the milk and the other half cup of the water, which should be cooled to lukewarm. Add the shortening and $\frac{1}{2}$ the flour (3 cups) and beat until perfectly smooth. Cover and let rise in a warm place until light, which should be in about one hour. Then add the remainder of the flour or enough to make a dough and the salt and knead well. Be very careful to keep the dough warm at every stage of the process. When kneaded until smooth and elastic, place in an oiled bowl, cover and let rise in a warm place until it has doubled in bulk, about $1\frac{1}{2}$ hours. Turn out on oiled board, knead lightly, and divide the dough in two equal parts. Use half for Parkerhouse rolls by rolling out to $\frac{1}{2}$ inch in thickness, cut with a biscuit cutter, brush with melted butter, crease with a knife thru the center and fold over. Place in well-oiled shallow pans about one inch apart and set to rise until light, about $\frac{3}{4}$ hour.

Use the other half of the dough for pecan rolls with the following ingredients:

Bread dough	$\frac{3}{4}$ cup butter
About $\frac{3}{4}$ cup honey	Cinnamon to taste
	$\frac{3}{4}$ cup pecan meats

Roll this dough about $1\frac{1}{3}$ inch thick, spread with softened butter, then with honey and dot thickly with the pecan meats which should be halves if possible, sprinkle with cinnamon, roll up and cut into sections about $1\frac{1}{2}$ inches thick. Place cut side down about half an inch apart in well-oiled, shallow pans, dip the honey and butter, which has oozed out in cutting, over them and set to rise, which should take about an hour.

(Continued on page 400.)

SWARMS — swarms — swarms. Still more swarms. This is surely "a swarming season." From all around us comes the report, "Unusually heavy swarming."

Not for years has there been in this section the tendency to such heavy or such early swarming. It really isn't any particularly difficult problem with us usually. Now, with white clover just coming into bloom (May 2), bees have been swarming, or trying to, for a month. Large hives, of themselves, will not always prevent it. Last month, speaking of big brood-chambers in this department, I said, "There is plenty of room for brood-rearing as well as supplies." Well this year it seems there wasn't. Apiaries where there are very few colonies in single brood-chambers have had real swarming problems this season. Occasionally the queen has not entered the second story (usually the lower) when queen-cups were started in the first. Sometimes they swarmed with plenty of room in both the double brood-chamber and a super, tho usually that was when the extra room had been given after the first symptoms had developed — preventive measures that did not prevent. It seems as tho there must be some sound reason for the increased general tendency. It sounds illogical and superficial to say, "Well, it's just a swarming year."

In the big majority of cases here there was such a generous supply of stores on hand and such vigorous laying, that the two stories were really filled early and a seriously crowded condition actually existed. Evidently three important factors, each one distinctly favorable, combined to bring about these results; the heavy fall flow, the mild winter, the early spring.

One thing is sure. If colonies are booming in spring, and there come several days of bad weather right during a good nectar flow, and then that bad weather breaks into fine, warm, bright days, the beekeeper better be on his job. There will be swarms.

The next time I ask anyone whether he keeps bees for pleasure or profit, I am going to add, "Or for discipline?" Certainly your self-control, your serenity, your patience, and either your philosophy or religion, whichever you have, and both if you can claim the double blessing, do get most thoroly tested and developed at times. We have just passed with varying degrees of equanimity thru such a period. Black locust came into blossom so early, so beautifully, so generously; and promptly the weatherman began to pull out his stops and work his pedals, until he had produced the weirdest weather effects imaginable—rain, frost, wind, more rain, more frost, more wind, cold and rain and wind all together. And

Beekkeeping as a Side Line

Grace Allen

thru dark dismal day after dark dismal day the bees were steadily in the hives and the time of locust bloom passing by. (Then when it cleared for a

few hours, they swarmed!) "It is costing me a hundred dollars a day," one beekeeper announced gloomily. Now it is warm and bright. And now the locust is practically gone. But beekeepers are a forward-looking people. And white clover is coming into bloom.

It is these things, moreover, that test the skill of the producer. Anyone can get honey when the conditions are ideal; the aim must be to learn how to do it when conditions are against us. There is generally ample opportunity for practice.

(Will E. McC. and M.-A.-O. kindly skip this paragraph? Thanks.) In accordance with all advice about packing, we left the bees in the quadruple winter case until late in the spring, or at least until we found the unpacked bees getting dangerously crowded. Then off came the top and sides of the big case, the packing was put away, and the four colonies examined. They were no better and no worse than the others. They really couldn't be much better, tho, and be contained within the boundaries of the hives. They would probably have classified; one fair, one strong, and two very strong. And that about represented the yard as a whole, except a few weak ones—especially the four or five in a row that had had mouse complications. (We assumed, by the way, these particular colonies were weak because of the mice getting in, but somebody tells us the mice got in because they were weak. That is true of moths that do their damage in summer, but is it true of mice that do their damage in winter?)

So again we feel discouraged about packing bees. To be sure, this is only the second time with the big case, and it was a mild open winter, leaning as far towards extreme mildness as last winter did towards extreme severity. Maybe the packing cases operate more advantageously in just ordinary winters; so maybe we'll try it again. I say maybe, because I have to have help with this job, both spring and fall, and the man I most naturally depend on is a trifle out of sympathy with the packing system. He might succeed in dissuading me.

Recently I heard a side-line beekeeper complain that one certainly got conflicting ideas of the way to handle bees by watching different beekeepers. The two being especially contrasted did almost everything differently. One worked slowly and gently, the other ruthlessly and fast. One used little smoke, the other a great deal. One disturbed the bees very slightly, while the other shook them off the combs. And one, I

might add, had under 50 colonies and the other 250. Which, queried the puzzled one, was the one to copy?

Whichever you prefer, was my answer. For side liners can make a choice. Commercial beekeepers may feel they can not afford the slower quieter method, being compelled to be as swift and expeditious as possible. If their bees get rough—very well then, they get rough. Which disposes of that point. If the work is less pleasant—let it be less pleasant. Which disposes of that point. If it is more tiring—it is simply more tiring. Results are what they are after, and they necessarily use whatever method will produce the best results, measured in dollars and cents.

The side liner, on the other hand, need not work after this fashion unless he prefers. He may so prefer, for he may wish to increase his bees to the largest number that he can handle during the time at his disposal. So he, too, may use the slapdash system with his bees and apply the dollar measuring stick to his results. And still be a perfectly proper side liner. Or he may—and I fancy most of the genus Side Liner will—prefer the quieter method that lets him smoke his bees very little, lift out his combs gently, and find his work such real enjoyment that it passes out of the category of work into that of leisurely delight. It will take more time per colony—but that may be an argument in its favor! Where every minute holds 60 seconds of pleasure, why reduce the minutes? Besides, one is learning and observing during these slow processes, gaining an intimate personal knowledge of the ways of the bees.

So it depends on the results one is after how one should work. Moreover, one isn't of necessity under the compulsion of doing it always the same way. Some glowing day of blue skies and birdsong and uninterrupted hours, one may choose to turn his work into a long slow delicious unforgettable delight; and some other day, with other affairs pressing, he may be ambitious to see how efficiently and quickly he can accomplish whatever needs doing. Many a beginner has started by the slow method, and after a few seasons passed on into swifter ones, which from a practical point of view is a perfectly logical procedure.

For beginners may well err, if err they must, on the deliberate side of the question. Therein lies greater safety for the inexperienced. Later, will come the quicker more businesslike handling, and short cuts will be discovered. For instance, the beginner examining for brood, goes clear across the hive, frame by frame. Then gradually the solidarity of the brood-nest becomes a fact to him; instead of just something he has read of, it is a part of his own experience. So some day when he finds brood in the second comb from one side, he will look quickly at the opposite side, and from the location of the two combs that mark the sides of the brood-nest, he will decide on the number of

combs of brood without looking at each one. He will tip up his hives to look for queen-cells from below. He will relentlessly shake the bees from the combs when it suits his purpose. And in that way his work will be done more quickly—and his bees will be crosser.

Yet when people talk about doing 75 colonies a day, they keep my imagination stammering, trying to keep up with them.

* * *

If you are keeping book accounts of your little side-line venture, you would like to have your records such that at a glance you can tell from year to year what your crops have been. The simplest way is for the sum total of your cash sales to represent your full crop. If you use a considerable amount of honey for your table, and perhaps to give away, your sum total of sales does not represent the full crop. Some further notation is required of the amount retained for family consumption.

I have known side-line beekeepers and chicken-raisers who have actually paid cash for all they put on their own tables, so as to keep the little business venture independent and with all records accurate. (Usually in this case they pay a wholesale price for the honey and eggs, just as a merchant will do for the things his family buys from his store.) But some people object to paying for what is raised right there on the place. In that case, if you would still like to have the sum total of sales represent the entire crop, you can regard the honey reserved for family use as your wages, entering it among your cash sales like any other sale. Then make an entry for the same amount among your disbursements, charging it to labor. This in no way alters the cash balance, but it does make your sales sheet include your entire crop. And it is honest with yourself, too, and with the bees. It's not juggling figures, either. It is as tho you were paid for your labor, and in turn you paid for the honey used. The amount of honey consumed at home is negligible in the case of a big producer, but is a sizable per cent of the backlotter's crop.

* * *

JUNE.

June, you are mine
With your shimmer and shine!
Your radiant gleaming
And delicate dreaming
Have run thru my veins like Arcadian wine!

June, you are mine!
Roses and bees
And the sun on the trees—
These are the part of you,
Out of the heart of you,
Open old doors with mysterious keys—
Roses—and bees.

June, I am yours,
By all magical lures!
Bees in their coming
And going and humming
Have woven my heart in a web that endures—

June, I am yours!



FROM NORTH, EAST, WEST AND SOUTH

In Northern California.—Last fall in most sections the honey flow shut off abruptly and not a few colonies went into winter with the spores of American foul brood in their honey. During March and April the weather was decidedly unfavorable. The frequent cold and windy days during this time compelled the bees in many instances to use up almost their last ounce of honey. Where bees were not fed either last winter or early this spring the loss thru starvation has been considerable. The loss thru American foul brood has also been great, owing in a measure to the large consumption of old honey. European foul brood in the valleys has been almost a negligible affair despite the fact that the conditions for its growth and development have been ideal. Along the Sierra foothill districts, however, European has proven a very serious matter and this is especially true thruout Tuolumne County. On the whole where bees have been supplied with ample honey they have bred up to normal strength, and where disease can be gotten under control a good crop this year is expected. The flow from orange and mustard was nearly normal during April and, at the beginning of May, with favorable weather, increased perceptibly.

During the latter part of March and the beginning of April our section of the State was favored by a visit from A. P. Sturtevant, specialist in bacteriology of bee diseases, of the U. S. Department of Agriculture. Mr. Sturtevant during his stay with us covered considerable territory and imparted much valuable information regarding the diagnoses of brood diseases. He said that with one exception he found that the problem of differentiation between American and European foul brood was more baffling in Stanislaus and Sacramento Counties than in any other sections where he had carried on investigations. He stated, furthermore, that the number of cases of American and European found in the same colony and even in the same comb were far greater in this section than in any other which he had visited. F. W. Burtch, secretary of the Central Valley Honey Producers' Co-operative Exchange called a special meeting of the beekeepers within the territory of the Exchange in order to meet Mr. Sturtevant. The gathering was well attended and certainly most appreciative of the fine work which the government is undertaking in their behalf. The diagnosis of brood diseases is not nearly as complex as most of our beekeepers supposed, and many of them after Mr. Sturtevant departed remarked that not for many dollars would they have missed his talk on the subject. Valuable as his demonstrations were with the microscope, it was his candid and thoro talk on the "symptoms" which impressed the bee-

keepers the most. It was the getting down to the finer points in the symptoms and a careful study of these symptoms at the various stages of the disease which helped so much to clarify and make it possible in almost all cases without the aid of a microscope to make a correct diagnosis. It will be unnecessary to describe the symptoms of the principal diseases, for E. R. Root has taken care of this subject quite adequately in the May issue of *Gleanings*. Every beekeeper must try to familiarize himself as much as possible with the various stages of the trouble and not rest till he knows what he has, and likewise bear in mind that prompt and proper treatment, weather conditions permitting, is imperative. M. C. Richter.

Modesto, Calif.

* * *

In Southern California.—Unsettled weather has prevailed over southern California for some time. Conditions, in general, have not been favorable for honey production. This is often the case during our orange-honey flow, when cool nights, foggy mornings, and cold weather prevail for several days or even weeks at a time. As the ground is quite dry where the trees have not been irrigated, these moist fogs help considerably toward a secretion of nectar. Altho I have not heard of that profuse secretion often referred to as sweetening up the horses and harness as they come in contact with the blossoms, the flow has been good most of the time since the trees came into bloom. A man of long experience in orange-growing told me that five hours after he began irrigating his trees, he could see the effect on the blossoms. They looked fresher, opened out better, stayed on the trees longer, and the bees were much thicker around them.

Today, May 4, at 11:30 a. m. the thermometer stood at 60 degrees. This is too cold for orange-honey production. Of course, every day is not this cold, but we dislike seeing any such days when the trees are in full bloom.

The sage country does not promise much honey. The rainfall of practically all of the territory depending upon this kind of moisture is below normal. The Imperial and Palo Verde Valleys will perhaps get their usual crop as they depend entirely upon irrigation. Some of the reports from San Diego County say that they will get a fair crop. That county reports more rain than Riverside, Orange, Los Angeles, or San Bernardino Counties. The fact that they have this extra rainfall will help their great white sage ranges, which furnish honey during June and July. When the orange honey is made, Riverside, Orange, Los Angeles, and San Bernardino Counties will likely have the bulk of their crop produced.



FROM NORTH, EAST, WEST AND SOUTH



When moving to the orange locations this year, I selected those colonies that were not considered strong enough to store honey satisfactorily and placed them in pairs about six inches apart. After they were well located and just as the flow was starting, I removed the weaker of the two, together with the queen, a frame containing eggs and larvæ, one of honey and pollen, and enough bees to start a nucleus. We put it on a new location. The remainder of the brood and bees were placed in the hive on the old stand. This gave us a colony that has given good results so far in storing surplus honey. If either queen is an old or poor one, I kill her, unite the two colonies, and after the flow divide again. This way one still has the same number of colonies. Your correspondent spent May 1, the opening day of the trout season, high up in the San Bernardino mountains. Up there, at an elevation of about 5,000 feet, about ten years ago there were kept 200 colonies of bees. The man who had owned them said that he always made a crop of honey and the bees never had to be fed. The honey was of a very inferior quality, however, and there was no market for it. With the present demand for any grade of honey, I believe small apiaries—say from 50 to 100 colonies—would pay well scattered over our higher altitudes. Considerable bloom is seen all summer scattered over the hills and valleys and the honeydew on the live-oak trees is very heavy at times.

Now we are told that we have been using a can manufactured and intended to carry oil weighing eight pounds per gallon. Are beekeepers more trusting than other people? Can it be true that the five-gallon can used almost universally to pack the honey crop of the Western States was originally made to carry 40 pounds of contents? If so, is it any wonder that we have trouble in successfully shipping 60 pounds of honey in them? The California Honey Producers' Exchange has adopted a can made of much heavier material and stronger in every way.

Disease, especially European foul brood, is very prevalent in some places in southern California. This seems to be the case in apiaries that were clean last year, they having been treated successfully two years ago. At least so the owners thought. Some apiaries have shown no recurrence of the disease; while, in others it seems to run rampant thru the great majority of colonies. In some cases it will run down a row of hives taking every colony until it strikes a queenless one; or, perhaps, two or three very active Italian colonies. These sometimes check the disease. In talking with different beekeepers, I am reminded of the boy who had the headache. He said that he would much rather have the toothache; while the boy with the toothache said that he would

prefer the headache. The apiarist with the American foul brood would prefer the European foul brood, while the one with the European can much more readily get rid of the American variety.

The date now set for the first shipment of bees from southern California to the Idaho locations is May 12. One month from that date will perhaps cover the shipping period for all northern bees wintered in California.

L. L. Andrews.

Corona, Calif.

* * *

In Minnesota.—On page 610 of the October issue of *Gleanings* I stated that one of our problems in this State is to arouse a greater interest in the annual honey exhibit at the State Fair, where the daily average attendance last year was over 71,000. At the last meeting of our state association the superintendent of the exhibit made an earnest appeal to the beekeepers of the State to recognize this as a splendid opportunity to advertise our honey, and thus help to build up the bee and honey industry in the State. A few years ago it was generally acknowledged that our annual State Fair honey exhibit equaled, if it did not surpass that of any other State in the Union. Two years ago certain changes were made so as to give all beekeepers in the State the greatest possible opportunity to participate, but the beekeepers have not responded in sufficient numbers to make the plan a success. This year a few more changes are being made in a final effort to encourage the co-operation of the beekeepers of the State. If this fails we will probably be compelled to go back entirely to the old method of professional mass exhibits, or have no exhibit at all. Let every beekeeper begin now to make plans to have an exhibit at the State Fair next fall. The new premium list will soon be off the press and a copy can be secured by writing Carl B. Stravs, 4649 York Ave. South, Minneapolis.

The commercial beekeepers' course of lectures given by Dr. E. F. Phillips at the University Farm, St. Paul, the last week in April proved to be all that Mr. Holtermann reported concerning the Cornell University course, page 228. Mr. Demuth was unable to be with us on account of sickness, but Dr. Phillips did double duty so we were able to hear the complete course.

Minneapolis, Minn. Chas. D. Blaker.

* * *

In Texas.—Perhaps every State has its share of local manufacturers of bee supplies, but it seems as though Texas has more than its share. Following the move to get all the bees out of box hives into movable-frame hives, there has appeared an extra crop of hive manufacturers. Of course, some put out a good and satis-



FROM NORTH, EAST, WEST AND SOUTH



factory product, but in far too many cases the product is not standard in every respect. Those who are about to transfer have been warned to secure standard equipment and to use it properly. It has been well said by a prominent beekeeper that what 90 per cent of the people accepted as standard was good enough for him. There may be an apparent saving in buying local supplies; but this is, at best, only temporary. If the time comes when additional supplies are needed, the local house may not be running and it will be necessary to buy elsewhere. This will most certainly show that the local equipment will not interchange with the standard, which will be a serious handicap for all time to come. In this connection it is not possible to overestimate the value of using full sheets of foundation when starting in new hives.

During the past year several beekeepers have become interested in introducing honey plants, primarily sweet clover. It is hard to say, but some of this seed that has come from the seedmen has not developed into what was expected. In a few instances burr clover came when white sweet clover was sown; and in other instances a close relative of the yellow sweet clover, of which the nectar is not available, has resulted. If at any time any beekeeper feels any doubt as to the variety and purity of his seed, he should correspond with A. B. Conner of the seed laboratory at College Station. Directions will be given for sending samples of seed, which are examined free of charge. Definite information concerning the growing of sweet clover in any locality can be secured by writing to the above-mentioned party.

Reports from all sections of the State indicate conditions which are nearly normal again after the year of such extreme conditions. In the Valley region the honey plants are in good condition, but rain is needed. The Coast region is also in need of rain to get the best results from the horsemint, although catsclaw and huajilla have given a good honey flow. In this region the first mesquite bloom did not yield any nectar. In the southwest region the honey-plant conditions are better than for several years and the prospects are good. Here the catsclaw and huajilla are just in full bloom. It is feared in this region that the first mesquite bloom will not yield nectar. In the west region, honey-plant prospects are good with alfalfa and mesquite about to bloom. The conditions are extra good in the east region, while in the central region the honey plants are in excellent condition, and in the north region the prospects are very good. From these reports it would seem that honey plants are able to revive very quickly when favorable climatic conditions prevail.

With honey plants in such good condition it is only natural to expect that a good con-

dition of the bees would follow, yet it is a matter of wonder how quickly the condition of the bees can change when honey plants are favorable. In the Valley, bees are in very good condition. In the Coast region a peculiar condition has developed, that of excessive swarming. This has resulted in some actual loss. Brood-rearing has been variable in this region. In the eastern section of the southwest region the bees are in excellent condition, while in the western section only about half of the bees are normal in strength. In the west region the bees are in fair condition and improving rapidly. In the east region the bees are in exceptionally good condition. In the central region the bees are in excellent condition with a tendency to excessive swarming. In the north region the bees are in excellent condition.

Of course, conditions vary so much within the range of the State that whether there is surplus honey or not, at this time, does not affect the yield for the year. However, a surplus has been harvested in the Valley, along the coast, and in sections of the southwest regions. In the east region a surplus has been made but has not been harvested. The local price of this early honey varies from 25 cents per pound retail for extracted in the Valley region, to 20 cents in 60-pound cans in the Coast region.

A normal crop of honey is expected this year in the Valley region, and in the Coast region a good average crop is anticipated, but in some sections it will be late. In the eastern sections of the southwest region a normal crop is forecasted, but in the western section only about one-half of a normal crop is expected. In the west region a normal crop is anticipated, as is the case in the east region. Throughout the central region a full normal crop is expected. In the north region it is yet too early to forecast the probable crop of honey for this year.

With such a vast amount of inquiries for bees it is interesting to note that there are still bees for sale. Not many have changed hands, for it is hard to bring the seller and buyer together. The price has been very high, \$15 in one region. There are only a few now specializing in shipping nuclei and pound packages. In box-hive sections there are some scattered colonies for sale.

F. B. Paddock.

College Station, Tex.

* * *

In Florida.—I wonder how many Florida beekeepers took note of that paragraph on page 319 of last month's Gleanings relating to the appearance of foul brood in Jamaica. In Cuba it has already become something of a menace, and the time cannot be long before this State will have to fight disease. In what position will the beekeepers be when that time comes? So



FROM NORTH, EAST, WEST AND SOUTH



far as I can find, our industry receives no official recognition, we have no beekeepers' organization, no state inspector, no apicultural department, no state appropriations are made in our interest, there is no legislation pertaining to our industry—in fact, we are the most helpless State in the Union to cope with any emergency that may arise.

Most of us are very careful and are constantly on the lookout for any symptoms of disease. Even in the matter of introducing queens from other States, we are careful to burn the cages and bees, tho there may be no danger from this source. It might be well for beginners to purchase their queens in Florida and take no risks, for it is the beginners who will suffer most. There is just as good stock in Florida as anywhere and this year conditions seem exceptionally well suited to raising the finest of queens.

It is not, however, from the purchase of queens that we shall get disease, but it will come from the movement of carlots of bees from Northern States to take advantage of our mild winters. I have before me a number of letters from States as far north as Michigan, regions where foul brood is rampant, the writers of which state that they will be bringing down carlots of bees next October and November, and taking them back after the orange bloom. As things are at present we cannot prevent this. We who have experienced the Florida wintering problems and the erratic orange flows know that the moving of bees to Florida for the winter will not be a profitable undertaking, and will not be tried more than once by anyone, but the damage to our interests may be permanent. All writers state that they do not want to "butt in" on anyone; but they cannot realize that all orange locations that would be suitable for such wholesale occupation are already being developed by resident beekeepers, and there is already too much "butting in" being practiced by Florida beekeepers themselves. There have been several cases around here where bees were placed in a starving condition by the crowding in of outsiders during the orange flow.

I invite correspondence from experienced Florida beemen on this subject of long-distance migratory beekeeping, in anticipation of a special article in the August or September Gleanings. Also, I would state that unless I receive more co-operation from the big producers of Florida my name must disappear from this column of Gleanings. [Not if we can help it.—Editor.]

At the present time gallberry is blooming, and it is yielding exceptionally well. Saw palmetto is beginning to open, and the prospects indicate that we shall obtain much more honey from this source than we did from the orange. Already that "most delightful drowsy humming" is to be heard

at night. One friend describes this "humming" or "roaring" as "the bees counting their money." Harry Hewitt.

Apopka, Fla.

* * *

In Ontario.—The weather, besides being very rainy to date, May 8, has also been steadily cool, and it has been a good while since bees have had so few flying days in the spring as has been the case this season. One beekeeper near me who winters most of his bees in the cellar, had been waiting in vain for a fit day to take his bees out of the cellar, and when I was at his place a few days ago the bees were inside yet and naturally very uneasy. On the other hand, I know of a large number of colonies in different yards that were taken out of the cellar on March 25. Our own bees, 70 miles away, that were wintered in the cellar, were placed on summer stands on Apr. 21, and they are in fair shape but somewhat short of stores. During the past few days, prominent beekeepers have written me saying that many of their colonies had stopped brood-rearing, having neither eggs nor unsealed larvæ, altho the queens were all right in every way. Evidently, the long continued spell of cool, wet weather, with little or no pollen or nectar coming in, is the cause of this condition.

This brings up the question of stimulative feeding here in the North during early spring. For years I have been opposed to the practice for many reasons, but there is a possibility that, under certain conditions, spring stimulation may prove beneficial. Early in March we found quite a few colonies in the five yards near home that were short of stores at that early date. A few were nearly out of food, but the majority of the 40 odd colonies affected had poor stores that had granulated solid in the combs and the bees were unable to use it, and were showing signs of dysentery. With considerable misgivings, we started to feed these colonies, placing an inverted five-pound pail over each, filled with syrup, covering all over snugly with the packing material on top. About every 10 days they were given a pail of food, no matter what the weather was like. While the weather since then has been very cool, yet we have had very few days of really severe weather. Anyway, I have to confess that at this date many of the colonies thus fed are away ahead of others having lots of stores from last fall and so not fed this spring. But I am not changing my opinion yet as to spring feeding, for even if an occasional season may show good results from the practice, the discomforts and worry that go along with the job more than make up for any benefit gained, so far as I understand the matter.

Markham, Ont.

J. L. Byer.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Are Our Apiaries Too Large and Too Far Apart?

Most people say bees fly two miles. I guess they do if they have to, or if nothing is in their way. But what is the radius of their effective range in which they will do well and under what circumstances will they not fly far? A difference of a few hundred yards frequently makes a big difference in the honey yield.

One of my neighbors and I, each, have had a yard about a half-mile apart. One would think the bees would work almost the same range, but every year he has dark honey and I have light. My location once had enough bees on it to kill the range for honey production, yet he gathered a fair crop. Last year conditions were reversed, and he scarcely made an extracting while I received a fair crop from mere nuclei.

If bees fly two miles, it seems there should not be this difference, but in between our two yards are many small fields, many of them bordered with trees. I think the trees are the key to the situation, for I do not believe that bees will fly half as far in a cut-up country where there are many things to break their flight. Further, we have much wind here. I do not believe bees work much over a half a mile from their yard with strong winds such as we have here.

I conclude from this that much honey is lost every year by putting enormous yards in a place instead of putting a fewer number and setting them from a half-mile to a mile apart and doing the extracting at a central honey-house. I do not believe bees generally work further than a half-mile from their yard unless they have to. And I know one thing—I don't want them to do so, if I can help it.

T. W. Riggs.

Overton, Nev.

Treatment of Laying-Worker Colony.

Last summer I raised 48 queens and lost only two in introducing, altho more were lost in mating. My plan for introducing is by the nucleus method with some modifications. I believe it is well worth the extra time it takes, as it practically insures success. By this same plan I have been successful in introducing a laying queen into a laying-worker colony. Here is my treatment of a laying-worker colony: After removing the inner cover of the colony to be treated, I place on top a ventilated bee-escape board (without escape), having cut in one end an entrance $5/16 \times \frac{1}{2}$ inch (entrance up), over which I place a two- or three-frame nucleus with queen and whatever brood she may have started, the rest of the frames being drawn combs or full sheets of foundation. This I leave for one week or more, when the nucleus body is placed down on the old bottom-board, the

ventilated escape-board placed on top, entrance down, which will be used by nucleus bees until accustomed to bottom entrance. Over this is placed an inner cover with empty hive body on top and telescope cover. The old laying-worker colony is removed about one-fourth mile and shaken, the bees returning to the old stand to find a laying queen and bees of the same colony odor. I have tried this plan a number of times, and so far have each time succeeded.

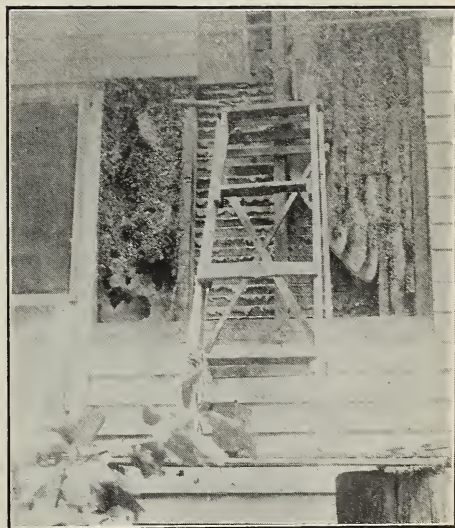
Rochester, N. Y.

Archie S. Lane.

[This seems very easy, but why not just exchange places with the laying-worker colony and a good colony and then requeen the former?—Editor.]

Two Colonies of Wild Bees.

The accompanying photo shows two swarms of bees in the side of a house, that a friend and I got some time ago. The picture was taken when only part of the siding and sheathing was removed. One swarm occupied a space 24 inches wide and about 7 feet long. The other oc-



Showing how bees built their homes in the side of a house.

cupied a space 16 inches wide and 10 feet long. They had been in the house for a number of years, but all the old honey had candied and was in excellent condition. Some of the combs were 5 or 6 feet long. We secured about 250 pounds of honey from the two swarms so we were well paid for our work. We also saved both of the swarms.

I have taken a number of swarms from the sides of houses and have always saved

HEADS OF GRAIN FROM DIFFERENT FIELDS

the bees. Where the combs are fairly large and straight I do not disturb the bees any more than necessary, but cut the combs loose carefully and examine each one for the queen. As soon as she is found I put her in a hive containing drawn combs and one frame of brood, and then shake the bees off the combs into the hive. If the combs are crooked and uneven, I drive the bees up with smoke as I cut the combs loose. As soon as I get them clustered at the top I put the hive up under them and brush them down into it. I usually do not try to save the brood-combs unless they are fairly large and straight. M. L. Dodson.

Jennings, Kan.



Swarmed on His Head.

I recently found a swarm of bees hanging on a branch of a tree close to the ground. I put it into a small box and took it to my cottage. They began to work, and made some comb. Two

heavy. The whole swarm clustered on my hat and hung down over my face, so I put the boards over my forehead to keep the bees out of my eyes. Then I walked about 15 rods to where an assistant had brought a hive and there had several pictures taken (one of which is reproduced here). I then lifted my hat and shook the bees into the hive, and now they are working finely and have the hive nearly full of nice combs, brood, and honey. I didn't have a veil or gloves on, and got nary a sting. It seemed strange that they were so gentle, after being so long without honey and having been disturbed so much.

My home is at Yorkville, Mich., but I am at present with the Nashville Agricultural Normal Institute at Madison, Tenn. This swarming incident occurred on the Institute farm. They have 30 stands of bees there, and are just starting to increase their apiary. J. C. Howell.

Madison, Tenn.



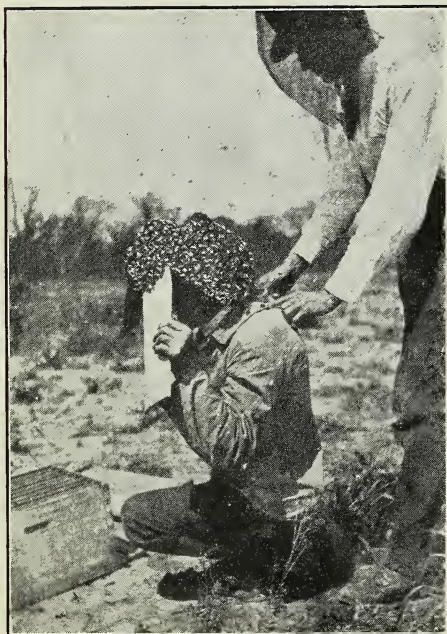
A Californian on California Conditions.

E. R. Root is all right in his presentation of the darker side of the wintering situation in California (March and April Gleanings). His picture is a needed corrective of the much gilded and rosy-tinted pictures of un-failing prosperity in the beekeeping business here. His picture might be modified somewhat, however, for some locations in regard to contrasts and temperature in winter. When I lived at Monterey, I was not myself situated so near the pasture as to be able to do what I now instance. But my friend and neighbor, C. W. Kerlin, had bees in the hills of Manzanita where there is a honey flow in January, and many winters the bees made surplus that enabled him to extract very considerable harvests in February and early March and still leave the bees strong and ready later for black sage, poison oak, etc. Dwindling did not bother much.

Regarding the clever idea of H. H. Sweet of the A. I. Root Co., page 210, April Gleanings, will it be immodest for me to indorse and say that over 20 years ago, when I used to write for Gleanings from Monterey, I used those paper contractors between closed-end frames and thought the idea my own?

Watsonville, Calif.

A. Norton.



A bunch of trouble and evidently some anxiety.

days later I transferred them into a hive where they stayed about two hours and then began coming out. I happened to see them when about halfway out and took two small boards and began to slap them together. The bees followed me to a peach tree. As they began to alight I got close up to see the queen, and at once felt my hat becoming

A Jab Here and a Jab There.

On page 231, April Gleanings, Dr. Miller speaks about blue cappings. I had blue cappings for the first time last year in 30 or 40 frames of honey that must have come from cow peas, as there was quite a flow (30 pounds to some hives) and nothing but cow peas visible.

Now that I am started I should like to

HEADS OF GRAIN

FROM

DIFFERENT FIELDS

tell Josephine Morse, page 226, also the Editor, page 214, that a good way to move bees is to spread a sheet on the ground, set the hive in the middle, and pull the sheet up on the sides, tying the two front corners of the sheet at the back of the hive, and the two back corners at the front of the hive. It may be done in half the time required for sacking a colony, and with much less danger; and when one takes the hive out, the cloth beats the bag all to death. Just untie the two knots and throw the cloth down and run; and when the bees have all gone in, lift the hive off the cloth or use smoker and drive the bees in before throwing the cloth down.

On page 248, in answer to Julius C. Bechtel, I suggest that by using the hanging section-holder (N super) which covers the sections on all sides, I save half the scraping, and the sections look better without scraping than they used to with it.

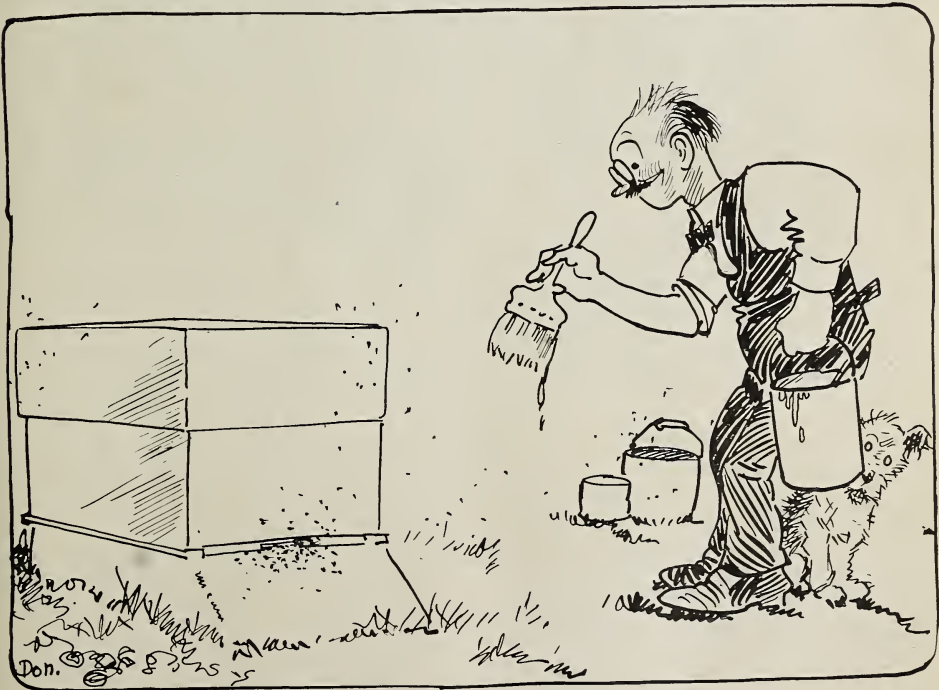
On page 227, in fastening with a stick, why not use a furniture caster and roll it down in half the time? and why waste six per cent of your foundation (which is \$6.00

on every \$100 worth of foundation) by mashing it down on the top-bar, when you can fasten it just as well, or better, and just as rapidly, with a spoon and hot wax (even without a groove) and save four or five dollars out of the six? In using different methods of fastening foundation, wiring, etc., half the battle is in learning how to do it quickly, which is learned only by practice. A man tries a new way for a few minutes and pronounces it no good, and says he can do it faster his old way; whereas if he would try the new way till he gets the hang of it, he would save much time, and perhaps dollars' worth of material.

Hammonton, N. J.

C. E. Fowler.

[Such section-holders would prevent much propolizing; but we find there has been very little demand for them during recent years. * * * There is value in the suggestion of saving wax when fastening foundation; but why not save still more wax by using one-third rosin? R. F. Holtermann saves all the wax by using paraffin and rosin.—Editor.]



THE BACK LOT BUZZER.

When Ma got home from Florida this spring she said she wouldn't exactly state that the bees and everything she saw down there was lazy, but she did see a dog chasin' a rabbit one day, an' they were both walkin'.

"B EES have wintered well where stores were abundant, but the mild winter kept them breeding and many got out of stores before spring. I have been feeding raw sugar and water in outside feeders when weather permitted the bees to fly. Beeswax must be scarce as I was offered 48 cents a pound two days ago."—F. P. Clare, Toronto, Ont., May 1.

"Swarming usually occurs during the first part of June here. This spring I cut queen-cells as early as Apr. 20, and one colony cast a swarm May 5."—E. M. Barteau, Suffolk County, L. I.

"I do not know as I understand fully why the smoker is used. I have not been using it recently. I wear a bee-veil but work in short sleeves and use no gloves. Have never been stung."—Carrie Greenlee Davidson, Hidalgo County, Tex.

"This has not been a good season in our district. In the spring there was great promise, but there was no nectar in the bloom. We have had a very dry summer, following a dry winter."—Geo. Lewis, Galston, N. S. W., Jan., 1919.

"As to sacking beehives, this is not a new thing. We have used the plan for the past ten years and at one time used 500 yards of cheese cloth made into sacks to move an apiary. It seemed the most practical plan, especially where hives are old and can not be made bee-tight, also in moving old box colonies."—G. W. Bereaw, Los Angeles County, Calif.

"Is it ominous? Not since 24 years ago have the hives been so overrunning with bees during the month of April, and the beekeepers in this section will remember, no doubt, that feeding for winter was the rule in the fall of 1895. Here is hoping that there will be no parallel between the years of 1895 and 1919 in the matter of nectar secretion at least."—J. B. Howe, Cattaraugus County, N. Y.

"Along the Atchafalaya River, from its source at Red River to the Gulf, is a veritable paradise for bees. There are numerous places where as many as 500 colonies could be kept in one yard. One producer in this territory last season having 250 colonies of bees (spring count) produced more than \$5,000 worth of honey and at the same time increased his colonies to 329."—T. C. Davis, Specialist in Bee Culture, Louisiana State University.

"When the weather is cool and rainy and the bees must be fed, I feed loaf sugar in the back of the hive on the bottom-board. Push the hive body forward until the opening is wide enough to admit the sugar. Before placing on the bottom-board I use a

BEES, MEN AND THINGS

(You may find it here)

medicine - drop-per and drop one or two drops of water on each loaf. This way of feeding has been very satisfactory with me. Just as soon as the natural

stores begin coming in the bees will desert the sugar."—Theodore Scharff, Greene County, Mo.

"Can bees hear? That is plain—bees can hear. But is theirs the same hearing as ours or not? I don't know. Perhaps bees can tell, think, smell, and so on. But it is an unknown thing whether it is the same of man or not. Our hearing, seeing, telling, thinking, smelling, etc., are not the same in musicians, artists, poets, philosophers, cologne-makers, and others. The bees can see but they are blind for some colors. So they can hear, but in a different manner and sense from humans, I think."—Yasuo Hiratsuka, Tara, Gifu-ken, Japan, March 2.

"People here laugh at me because I take so much trouble to make the hives and spend money on material and tools. They say that they get just as much honey out of ordinary boxes, but I do not believe it. Anyway, my honey is nicer and clearer, and I have no difficulty to sell it at 6 cents more than my competitors. I should like very much to get some Italian bees, as I think that the natives (both men and bees) are rather lazy. The largest beekeeper in this vicinity has about 100 boxes of bees and made last year 2,000 pounds of honey and considerable wax. The record colony last year, so far as I know, produced 180 pounds of honey."—Alberto Hunernadel, San Geronimo, Republic Argentina, S. A., March 26.

"Bees are not as common among the farmers in France as in the U. S., but I have seen several large apiaries. I have never seen a better kept apiary than one of these. The hives were in rows, each row on a terrace about two feet higher than the row in front of it. The hives were all alike, but the fronts were painted in different colors. The grass was cropped close and the shrubbery neatly trimmed. The honey-house, built of carved stone, contained hundreds of drawn combs and two extractors. The supers which contained the drawn combs were piled in stacks and the cracks sealed with paper. The keeper told me that he took from 50 to 70 pounds from each colony and received about 50¢ per pound. When you find a farmer owning bees, which is not often, you find them using straw hives with the cracks filled with cement. Sometimes you find a farmer having homemade wooden hives. I think they commonly use straw hives because lumber is so scarce and high-priced."—J. L. Clark, Headquarters Co., 109th Field Signal Bureau, A. P. O. No. 911, American Forces.

A FIELD meeting of beekeepers will be held under the auspices of the Colorado Honey Producers' Association on Saturday, June 14, at Iceland Park, Greeley, Colo. A large attendance is expected and a good program will be provided. Several beekeepers of national reputation are expected to be present. The Greeley beekeepers will provide refreshments and will also have automobiles at the trains to meet beekeepers that may arrive by railroad. Everybody interested in beekeeping who can possibly arrange to be present, is cordially invited. C. H. Wolfe is chairman of the entertainment committee, and Frank Rauchfuss is secretary of the Association.

* * *

Beekeepers of Arkansas, representing the various county associations, will convene in Little Rock at 9 a. m., May 31, at the court house for the purpose of organizing an Arkansas Honey Producers' Association.

* * *

There will be a field meeting of the beekeepers of three counties of southern Michigan and two counties of northern Ohio on July 11 or 12 at or near Jasper, Lenawee County, Mich. The summer meeting of the Michigan State Beekeepers' Association will be held on the 15th and 16th at Boyne City.

* * *

The Michigan Beekeepers' Association succeeded in getting the legislature of that State to appropriate \$10,160 per year for the next two years for inspection work. The Michigan Beekeepers' Association now has a membership of 375 members and is aiming to have 1,000 members by the end of this year. It is a real association and is constantly doing excellent work.

* * *

The newly-organized Montgomery County, Pa., Beekeepers' Association held a very successful outdoor meeting at the apiary of J. S. Shaeffer of Trooper, Pa., on May 3. On June 14 the Philadelphia Beekeepers' Association and the Pennsylvania State Association will hold a combined meeting at the School of Horticulture for Women at Ambler, Pa.; and on June 28 a combined meeting of the Philadelphia and Montgomery County Beekeepers' Associations will be held at the apiary of Wm. Wakeman at Washington Square, Pa.

* * *

The Birmingham, Ala., Ledger of date of April 26 said: "The Alabama extension service is making a beekeeping survey of Alabama to ascertain and develop the interest and investment in bee culture in the State. Dr. F. L. Thomas, the extension entomologist at Auburn, has just sent out

JUST NEWS

Editors

5,000 circulars requesting owners of bees to give full information of their plans, numbers of colonies, kinds of bees, surplus honey produced in

1918, where marketed, and important honey plants in the locality. A systematic and continuous effort is thus being made to develop one of the great natural resources of agricultural life in Alabama.

* * *

The older readers of Gleanings will be pained to learn of the death of Eugene Seacor, Forest City, Ia., aged 75 years, who was, on May 14, gored to death by a bull. It will be remembered that he was, from 1897 to 1902, the very efficient General Manager of the National Beekeepers' Association, and that much important work was done during his tenure of office. His few prose writings were of value; but it was as a poet that he was best known to beekeepers, being for many years the favorite poet of beedom.

* * *

The fifth annual report and balance sheet of the New Zealand Co-operative Honey Producers' Association for the year 1918 shows the total sales of the Association for that year to have been more than \$176,000. The number of shareholders in the Association increased during the year from 238 to 420, and the subscribed capital increased from \$22,550 to \$33,580. Reviewing the 1918 season's operations the annual report states that the Association's business was beset with many difficulties and perplexing situations. The shortage of shipping proved a very real difficulty, and up to the end of the year 1918 only 135 cases of the 1918 crop had been shipped. But since then, the report states, due to the cessation of hostilities, 329 tons of honey were shipped during the first two months of the present year. The report contains this rather significant statement: "Some of our suppliers appear to have been at fault in the handling of their honey, quite a number of lines having been held up from time to time by the graders, and a much larger percentage than usual finally rejected." It is evident that careful grading of food products is one of the specialties of the New Zealand government. One of the regulations of the Association reads as follows: "Honey forwarded to the Government grading stores must be granulated hard and must in all other respects comply with these regulations and any regulations issued by the Department of Agriculture in respect to honey to be passed by the Government graders for export. The Company is not bound to accept at Government grading stores honey that does not comply with the standard required by the Department of Agriculture for export."

AN argument between Charles Blaker and Frank Pellett concerning inspection appears in the American Bee Journal (May). In reply

to the statement of Pellett, in the February issue, that the office of inspector should be purely educational, Blaker dissents, saying education is important but not sufficient; nor does he agree that, as in the case of hog cholera, as mentioned by Pellett, the owner's financial interest in the welfare of his property will be sufficient incentive to keep his colonies free of disease. In the February issue Pellett objected to the inspector being judge, jury, and executioner in cases of diseased colonies. Blaker wishes to know why this would not be as fair as in the case of glanders in horses or tuberculosis in cattle. Mr. Blaker objects to comparing the inspector to a policeman who "is called only when you have committed a crime or are suspected of malicious intent." He says that during his four years as an inspector he has met with serious objection from less than one-half of one per cent of the owners whose apiaries he inspected, and only one considered him a "policeman," and that one was mentally deranged.

Thruout this discussion Blaker apparently feels (1) that there should be proper law in regard to diseased colonies, and proper enforcement of the law; (2) also that this enforcement of the law as well as educational duties should be in the hands of the inspector. To the first point Pellett quite agrees, showing in his reply that he has never proposed doing away with such law. To the second point he objects, asserting that the enforcement should be in the hands of the officers whose business is the enforcement of law. He does not think that satisfactory results can be obtained with the present law, and feels it has been tried out long enough to prove this; and he thinks that, with the same expenditure, much more could be accomplished if the inspector were given educational duties only. Further, he explains how much harm has often been done by incompetent inspectors. The remedy for unsatisfactory results and incompetent inspectors, Blaker believes, is to change the inspectors and not the law. [Frank Pellett is surely right in emphasizing the value of the educational duties of the inspector; but how it would work out to place enforcement in the hands of local authorities, we are not certain. This point is discussed neither by Pellett nor Blaker. We accordingly quote one view of the question from a recent letter bearing on the subject. The letter is from E. C. Cotton, Chief of the Bureau of Horticulture, Columbus, O., and is as follows:

"I believe that no one recognizes more

THE BEST FROM OTHERS

Iona Fowls

thoroly than I do that the foul-brood problem is very largely an educational one, and that more can be accomplished with a comprehensive campaign of one

year than can be accomplished in a decade of pure police work. However, it is necessary that there should be police power to handle those that refuse to listen to education. The provisions of the Iowa law place this enforcement in the hands of local authorities, which I believe to be entirely wrong, and one that the experiences of this State have demonstrated as out of the question. It is necessary to have a disinterested police power—one that is not beholden for their votes to the people whom it is likely to be required to deal with in enforcement of a law."]

* * *

SUGGESTIONS CONCERNING ISLE OF WIGHT.

In the search for a strain of bees immune to Isle of Wight disease, the Egyptian has been suggested. A. Z. Abushady, in the British Bee Journal for April 10, believes the apparent immunity is probably due to the difference in climate, and thinks that if Egyptian weather could be substituted for English weather the marked fatality of Isle of Wight disease would cease. He believes metabolic poisoning from wrong dieting, together with prolonged confinement, is more important as an injurious instrument than infection itself. He suggests the possibility that the rectal glands of Chun, which Dr. Brunnich believes are concerned in the excretion of water from the blood, may, because of irritation or lesion, secrete such an abnormal amount of fluid that the blood pressure is so lowered that flight is impossible. There is a better chance, he believes, to combat the disease with education than with specifics and cures.

* * *

EXCHANGE BUYS GOOD CANS.

The cans produced by the California honey-producers, says the Western Honeybee, April, are of 135-pound tin. When tested, a can was filled with honey and dropped from knee height. Not until the tenth drop did it give way at the corners. Chas. Justice estimates that on the 42,000 cans with cases which the exchange has just purchased, members who usually buy at jobbing prices will be saved over 36 cents on each case of two cans.

* * *

TO PRODUCE WHITE COMB HONEY.

To produce comb honey, with nice white cappings, D. Anguish, in the Canadian Horticulturist and Beekeeper (May) gives this method: Place a body filled with full sheets of foundation on top of the brood-chamber, until a few days after the honey flow commences. Then take out the under

body and set down the upper body with new combs. (Altho it is not definitely stated, we infer a comb-honey super is to be placed above this body.) Shake in front of the entrance all the bees and queen from the old brood-combs just removed. In a few days give another super next the brood-chamber.

* * *

SOLDIER BEEKEEPER.

An article of interest to disabled soldiers is found in the American Bee Journal. There is given a short account of how Harvey E. Nichols, tho deprived of both legs, has made a successful start with bees. From one colony secured in 1915 he has increased to twenty, and is also now profitably running an apiary of 85 colonies on shares. At the age of 29 he is also putting himself thru high school, giving one-tenth of his earnings to charitable purposes, besides partially supporting a sister and grandmother.

* * *

HANDY ARRANGEMENT.

"When a load of full supers comes home from an outyard it is driven straight into the garage and the doors closed, so that robbers are shut out immediately. The load is then stacked in the extracting room at the left. Upstairs is storage room for supers, also the carpenter's shop, and there is a trapdoor right over the truck as it stands in the garage. This combination apiary building, carpenter shop, and storage, greatly simplifies transportation and makes us entirely independent of teams."—John Moore, Canadian Horticulturist and Beekeeper (April).

* * *

MARKING QUEENS.

Painting queens as an aid in recognizing them is practiced by Fern Stackli of Switzerland, as stated in the January American Bee Journal. For this purpose he uses chrome yellow made into a thick paste by means of alcohol and then diluted until liquid with sulphuric ether. For holding the queen while painting he uses a net made of a ring of pasteboard with a few threads about an eighth of an inch apart and running in all directions. This is slipped over the queen while a small particle of color is dropped on her back. Mr. Stackli usually marks his queens before they are mated and then introduces them immediately into mating nuclei.

* * *

FIRST CLASS INSPECTION.

From statistics we learn that foul brood is not only being controlled in Texas, but in some counties is being materially decreased. According to the April Beekeepers' Item this State has the most comprehensive foul-brood-control system of any State in the Union, and one of the main features of the system is education. Prof. Paddock believes that "Inspection work can not go forward alone. It must be preceded by educational work." He also says, "These inspectors are all practical, experienced bee-

keepers themselves, and have the interests of the beemen thoroly at heart."

* * *

BOTH DEEP AND SHALLOW FRAMES.

"The deep frame has its advantages under certain conditions, and so likewise has the shallow. We have a choice, and, more than this, we have the combination of the two systems, which gives us something better than either system alone."—Canadian Horticulturist and Beekeeper, April.

* * *

VENTILATING DEVICE FOR MOVING BEES.

In discussing migratory beekeeping, Morley Pettit, in the Western Honeybee for April, says when moving he uses a device about like a comb-honey super with the sides mostly wire cloth. One of these is placed between the bottom-board and the brood-chamber, and, if considered necessary, another between the super and the cover.

* * *

Para-dichlorobenzine is a new chemical, non-inflammable, harmless to human beings and domestic animals under ordinary conditions, and yet in many instances poisonous to insects. According to the Beekeepers' Item, April, this is greatly to be preferred to "high life," and is recommended to beekeepers by Prof. Paddock and other good authorities.

* * *

An account of a queen becoming chilled, and, as a result, losing her fertility, but later regaining it, is given in the American Bee Journal for May. We know that Mel Pritchard has had queens permanently injured in this way, but this is the first time we have heard of such a queen again becoming normal.

* * *

In the first issue of the Dixie Beekeeper, a new monthly that made its first appearance in April, the editor, J. J. Wilder, says because of rough handling there has been no end to the losses in shipping comb honey. The express company having grown tired of making good such losses has ordered its agents not to accept any more comb honey until a better way of packing is enforced.

* * *

Miss Mae Brown, who has charge of large queen-breeding apiaries in the Hawaiian Islands, has for her helpers four Japanese assistants as represented in the American Bee Journal for May. Requeening is done at the rate of over 2,000 each year, all colonies being requeened every two years.

* * *

"When you have a swarm, do not go queen-chasing. Watch for pollen going in. * * * If no signs at the end of the third week, have thoro examination."—H. C. C. Carter, in Bee Craft (April).

* * *

Royal jelly may be kept from one season to another, it is stated in the April Western Honeybee.

QUESTIONS.—

(1) Would a prime swarm coming from a diseased colony carry foul brood with it? (2) If near swarming time I take a frame of brood from a clean colony, place

it in a clean hive, and then set this hive on a stand in place of a diseased colony, and move the diseased colony a few rods away, would the field bees that return to the old stand carry the disease? I would, of course, contract the entrance of the diseased colony, and in a day or two do away with them.

Pennsylvania.

Answers.—(1) If the swarm is hived in a hive containing only foundation, the bees would not be apt to become diseased; but, if hived on frames of comb, infected honey might be stored right in those cells, and thus the disease be continued. (2) If none but bees from the field entered, there would be no chance for spreading the disease; but in this method you have suggested, there would be a chance that when the diseased colony was moved away some of the bees might gorge themselves with honey and fly to the old location, where they would store a part of the infected honey in the cells of the frame of brood you gave them. This would, of course, give the colony foul brood. More than this, with your plan much valuable brood would be wasted.

Questions.—(1) When buying bees and queen, how is the queen sent—in with the bees or alone? (2) If I buy black bees will it be necessary for me to kill the black queen before introducing an Italian?

Ohio.

Answers.—(1) When a queen is ordered to be sent in the same shipment with bees, she may be introduced before shipping, may be sent in a cage by herself, or the cage may be placed in the package with the bees, so that she may be introduced en route. The last is probably as good a plan as any. Most queen-breeders would probably send in this way if requested. (2) Yes; and if introduced by the cage method the new queen may be given at the time of removing the old one.

Questions.—(1) How long will good ripe honey remain in cans without spoiling? (2) In answering the questions on page 42, January, 1919, about swarm control, you said it is best to leave field bees with the queen in the lower part of the hive. Why do young bees, when left with the queen, cause the starting of queen-cells in the lower hive body?

Long Island.

Answers.—(1) If honey is sufficiently ripened it may be kept for years without deterioration. (2) After a colony has started preparations for swarming, the nurse bees produce the milky food with which the larvæ are fed. These should, therefore, be in the upper story with the brood. Part of the food that they produce will be given to the young worker and drone larvæ, and part will probably be used as royal jelly in the queen-

GLEANED BY ASKING

Iona Fowls

cells, and this upper body is exactly where we want the queen-cells. Now, down in the lower story there will be only field bees, and consequent-

ly there will be little danger of queen-cells being started, for there will be no nurse bees to supply the food required for raising queens.

Question.—When I put on a super should I remove the inner cover from the hive body, or is the hole in the cover sufficient for the bees to go from the hive up into the super? W. H. Goodwin.

West Virginia.

Answer.—Before placing the super over the brood-chamber the inner cover should be removed. If the super is an extracting-super, then between the super and brood-chamber there should be inserted a queen-excluder. If the super is a comb-honey super, containing sections of foundation, it may be placed directly over the brood-chamber, with nothing intervening. Over the top of either the comb or the extracting-super should be placed the inner cover, just removed, and there should be a piece of thin board nailed over the hole in the cover. Over this should be placed the outer cover.

Question.—In the January Gleanings we read that combs of candied honey may be removed from the hive, uncapped, dipped in hot water, and returned to the hives wet, thus saving honey that would otherwise be wasted. Will not hot water spoil the comb? John Stahlman.

Sweden.

Answer.—That water was only "warm" when it left our desk; but it has passed thru the hands of the printer's devil since and became "hot."

Question.—Does the double-walled Buckeye hive need much protection from the sun during hot weather? Do you have to bore holes in the sides of the hive to keep it cool? Lindsley Washburn.

Pennsylvania.

Answer.—The double-walled Buckeye hive is much warmer in winter and cooler in summer than the single-walled hive. No holes are necessary in the side walls of the hive in order to keep it cool. However, any hive, whether double or single walled, may need special ventilation during hot weather. See "Ventilation," under "Talks to Beginners."

Questions.—(1) Suppose one puts a weak queenless colony above a strong one with a queen-excluder between. Will the weak colony with the help of the strong one rear themselves a queen? If so, will the colony below the excluder swarm? (2) When a queen is raised in an upper story, how can she get out to be mated? A. B. Wing.

Florida.

Answers.—(1) One could not be certain that the upper queenless colony would build queen-cells. If this plan were applied at swarming time the upper colony would be quite likely to build good queen-cells, and swarm. (2) A young queen can not be mated from an upper story unless an entrance is

left to the upper hive. When leaving such an entrance we advise giving it at the back of the hive rather than the front; for if the upper entrance faces in the same direction as the lower one, the queen, on her return, may see the bees entering at the lower entrance, and join them. This would result in one of the queens being killed. With a back entrance the queen is not as easily lost.

Question.—I have placed full sheets of foundation in my brood-chambers, but they seem to fall down. Why is this? I am disappointed in this, as it is my first trial in order to get worker brood.

Iowa.

E. H. Seeliger.

Answer.—If you use properly wired medium brood foundation in the brood-chamber, attaching it securely to the top-bar, and see that the hive has plenty of ventilation, we see no reason why the foundation should fall down. Of course, foundation should never be given unless there is a honey flow or you are feeding, for otherwise the bees will gnaw holes in it, and the weight of bees will finally pull it from the frames.

Questions.—(1) Is it possible that a colony will become queenless during winter and not die? (2) They claim that you do not have to wire the shallow frames. Is this so? Paul A. Jacobson.

Minnesota.

Answers.—(1) Yes, this often occurs. Such colonies should, of course, be requeened as soon as possible in the spring or else united with some colony a little lacking in strength. (2) Some good beekeepers do not wire shallow frames; but we prefer to spend the extra time and trouble, and have all of our frames wired. It is, of course, not nearly so necessary with the shallow as with the deeper frames, as there is less danger of the combs being broken from the frames.

Question.—As my bees were hanging out as if about to swarm, I divided them. I took three brood-frames and put them in another hive with the bees that adhered to them. I think all the bees went back except a very few. In three days I again opened the hive and found the floor covered with half-grown dead bees. Why was that? Did they starve, or was it due to some other cause? I thought that perhaps they had foul brood; but I found in one of the books that foul brood smells bad, and my bees do not smell at all except like honey. So I think they starved; but there are still bees in the hive, and one of the frames has several queen-cells.

Miss Lucia Adams.

Florida.

Answer.—If there was no honey left in the cells, they probably starved; but we rather suspect your trouble was that you did not take enough bees together with the frames of brood when making your division, and that the old bees returned to their old location, leaving too few bees to keep the brood warm, and, therefore, it chilled, and the bees pulled them out of their cells. In this case it is also possible that the queen-cells may have been chilled, and that no queen will hatch. Close watch should be kept; and if you find the queen-cells do not hatch, a queen should be introduced. Next time, when making increase, we suggest that you take all of the sealed brood and two-thirds of the bees to a new location and

contract the entrance to a three-eighths-inch opening. Then when part of the old bees return to the old hive there will still be enough bees left to take care of the brood and keep it from chilling.

ANSWERS BY MEL PRITCHARD.

Question.—An Italian queen that I introduced, the bees sealed up in the cage with wax and smothered. Could you tell me why they would do that?

William Wall.

Illinois.

Answer.—It sometimes happens that a queen-cell is overlooked, and a virgin queen hatches at or before the time that a queen is caged in the hive for introduction to the colony. In such a case the bees often accept the virgin in preference to the caged queen. Since they can not reach the caged queen to kill her in any other way they will propolize the cage and smother her.

Questions.—(1) A few weeks ago I received a very fine \$6.00 breeding-queen. I am raising some fine cells, but am having quite a discouraging time in getting my cells and virgins accepted, either by nuclei or full colonies, and I should be very grateful to you if you would tell me how to do it successfully and why I have so far failed. First, when I kill a queen and give a cell or virgin, in at least half of the cases the bees raise cells of their own, even tho the cell given them is ripe and ready to hatch or the virgin less than 24 hours old. I give the cell or virgin immediately after killing the queen. Would it be better to wait a while after killing the queen or to take away all unsealed brood so they would have no brood from which to raise a queen? I made 20 nuclei, out of which I got only 6 queens. All the rest have cells of their own, or laying workers. The nuclei I made by dividing a ten-frame hive into three bee-tight compartments, as you describe on page 460 in the A B C and X Y Z of Bee Culture, each compartment holding three frames—a frame of hatching brood and two empty combs. Our nights here are so cool that I prefer to hatch cells in queen-cages in strong colonies; for with the nucleus, cells will chill and not hatch; and the majority of those that do hatch are evidently not accepted by the bees. If I give them a frame of open brood soon after the cell is hatched, they raise cells of their own. In that case can you tell me why the virgin that hatches is not accepted. If you can tell me how to introduce safely a virgin into a nucleus or full colony it would be of great value to me. (2) Will a virgin become fertilized and begin to lay if introduced in a hive or nucleus where there is no brood at all?

H. H. Winger.

Idaho.

Answer.—We find it very difficult to introduce a virgin after removing a laying queen except to a very light nucleus. By waiting 24 hours a virgin not more than six or eight hours old will usually run in at the entrance safely or may be introduced in a Miller cage, leaving the candy exposed so that the bees can liberate her in 24 hours. In introducing to a strong colony it is better to leave them queenless 48 hours. We find that introducing cells in West cell-protectors is more satisfactory. These should be introduced on the tenth day after grafting, and the hive should not be opened until the third day after introducing either a cell or a virgin. A virgin will introduce into a hive where there is no brood, and begin laying as well as or better than where there is brood if the bees are not too old.

IN many localities thruout the North this is the busiest month — the month in which bees store the greatest part of their surplus honey. It is also the season when they are most inclined to swarm, and therefore will require very close attention; for, as previously stated, it is generally true that those colonies that are very large and yet do not swarm are the ones that store the greatest quantities of honey.

Normal Condition This Month.

At this time of the year there should be at least six pounds of stores; the hive should be overflowing with bees, and there should be quantities of worker brood in at least nine or ten combs. Those that have already been given a super, doubtless have considerable brood in both stories by this time, if the queen has had access to both stories as previously recommended.

If, however, the colony is short of stores, seems weak, has too little worker brood, clusters out on the front of the hive, or starts queen-cells, special measures will need to be taken.

Stores.

For a colony ever to run short of stores is a disgrace to the beekeeper; but of all times he can least afford to have this happen just before the honey flow. Yet this is the time it is most apt to happen, for brood-rearing is then at its height, and great quantities of stores are consumed, so that if the beekeeper has been at all stingy with his bees the strongest colonies may in a few days be destitute, and the drones, perhaps, be driven from the hives to starve, or larvæ pulled out at the entrances in order that the few remaining drops of honey be saved for the workers. In such an emergency, candy should be dampened and fed to the bees by placing it over the brood-frames, or light-brown sugar can be dampened and placed in a dish on top of the brood-frames. Syrup could be fed; but we do not recommend it, as it is liable to start robbing.

Robbing.

If any sweets are left exposed so that robber bees gain access to them at a time when no honey is coming in, a great turmoil and excitement ensues which is not good for the bees nor for any human being who happens to be on the scene. During a dearth of honey, hives should never be opened for any length of time for fear of starting robbing. If robbing should begin, the hive should be immediately closed, and the entrance should be contracted to a $\frac{3}{8}$ -inch hole so that the colony may more easily defend itself from the robbers trying to enter.

When to Requeen.

All the colonies lacking in bees or worker

TALKS TO BEGINNERS

By Iona Fowls

brood, which the beginner knows wintered well and had plenty of stores thruout the spring, but not enough stores to crowd the brood-chamber, doubtless

have a defective queen, which should be replaced by a good Italian. To do this it is only necessary to find the old queen, kill her, and then introduce a new one by the cage method as given in the directions that accompany her when received from the queen-breeder. Since queens purchased from a distance do not always arrive when expected, the queen should not be killed until the new one arrives. Then the old one may be killed and the new one introduced at the same operation.

Which Colonies Swarm?

Very strong colonies that cluster on the front of the hive or start queen-cells, usually need some attention to prevent swarming. Still, sometimes colonies start queen-cells because their queen is old or defective, and they wish to supersede—that is, raise another to take her place. In such a case one will usually note that fewer queen-cells are started than under the natural-swarming impulse, and also the brood will be scatteringly placed, and often a large proportion of drone brood will be present. Under this condition, all but the best queen-cell should be torn down and the bees allowed to raise another queen to replace the poor one.

When colonies are supplied with good young queens, sufficient ventilation, plenty of super room in which to store honey, and enough room in the brood-chamber for the queen to lay without being crowded by brood or honey, it is usually possible to keep the colony contented and hard at work.

Providing Ventilation.

If all packing has been removed in May, and the entrance-block is now removed, giving an entrance the entire width of the hive, this may in some cases provide all the ventilation needed; but if the weather is very warm it will be found a great help to move the inner cover back a little, leaving a quarter-inch crack at the front of the hive. To give still more ventilation, the supers may also be moved slightly backward or forward to give a bee-space, and the hive itself may be raised from the bottom-board by inserting a small block at each corner. (If raised on blocks it will be necessary, when beginning work at the hive, to blow a little smoke thru this side opening, as otherwise one would be likely to be stung by the sentinels stationed along the crack.)

When producing comb honey, giving ventilation at the bottom-board will probably be all that is necessary; but in extremely hot weather a slight opening may be given next to the cover. When producing comb

honey the supers are supplied with foundation instead of comb, and therefore much more comb-building is necessary than when raising extracted honey. Much of this comb-building is done during the night, and can not proceed unless the supers are kept warm. For this reason no ventilation should be given between supers, and at the top only with great reluctance.

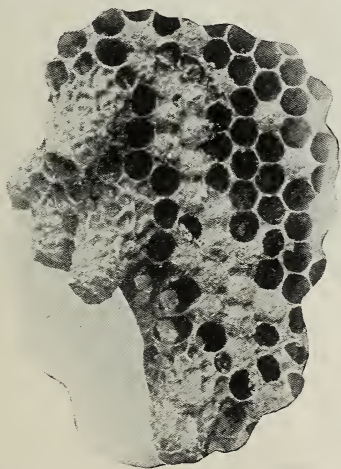
Giving More Room.

Aside from supplying with a good young queen and plenty of ventilation, nothing is more important in the prevention of swarming than giving sufficient room for the queen to lay in the brood-chamber, and enough room for the bees to store in the super.

In the clover regions the honey flow usually starts about 10 days after the first blossoms open. At that time little particles of new wax will begin to appear along the top-bars of the frames. This should be taken as a signal for giving a super to all normal colonies not already supplied.

Production of Comb Honey.

Since bees are sometimes reluctant about entering the small section boxes of foundation, comb-honey men have resorted to vari-



The queen-cells are the large ones at the left, somewhat resembling peanuts.

ous systems for getting the bees started to work above. Probably the best one for the beginner, provided he is able to obtain a few sections of drawn comb from a neighboring beekeeper, is to place such sections of comb in the center or at the sides of the super. Even one at the center of each super would be a great help.

As soon as the first section-super is about half filled, the second may be given, placing it under the first. Again, when this is half filled a third may be given in the same way (beneath the other two). Continue to give other supers as needed. Ordinarily toward the end of the honey flow no more supers should be given, but the bees allowed to finish those already begun. But if a colony becomes so crowded for room at this time that it seems

best to give still another super, it should be placed on top instead of next to the brood-chamber. The bees will then be apt to finish the other supers before doing much work in the last one, and yet will have the room if more room is really necessary.

Until all danger of swarming is over, all colonies, whether run for comb or extracted honey, should be examined every seven or eight days in order to keep them in normal condition. It should be remembered that, during a good flow, colonies store very rapidly, in some instances filling a shallow super in three or four days. They should never be allowed to become crowded, but should be supplied with room a little ahead of their actual needs. It is possible, nevertheless, to overdo the matter and give room too rapidly. This does little harm in the case of extracted honey; for if the end of the extracted-honey season finds the beekeeper with partially sealed honey in his extracting-combs he needs only to leave the honey on the hive until it is ripe, and will then be able to extract and sell it at as high a price as the entirely capped. But if the comb-honey supers are given so rapidly that the sections are unsealed at the close of the flow, such honey must be sold at a low price because of its unattractive appearance.

On the other hand, there is also danger of giving room too slowly, tho it is necessary to keep comb-honey colonies in a more crowded condition than extracted-honey colonies; still, if too crowded, the colony will build queen-cells in preparation for swarming.

Now, for the beginner who naturally wants a little increase and is willing to sacrifice a part of the honey crop in order to obtain it, we feel inclined to advise him to permit natural swarming and then hive in the usual way as described later. However, if he wishes to get more honey by keeping the working force together, and wishes to take the extra trouble, he may, perhaps, like to try a plan of Dr. Miller, the best comb-honey authority we know.

When a swarm issues he cages the queen and shoves her back into the entrance (from which the swarm and she came and to which the swarm will return) close against the bottom-bars where the bees will take care of her. Any time within the next 10 days he removes the supers and puts the brood-combs into an empty hive. In the now empty hive on the stand he puts two combs of brood next to one side with two or three dummies or chaff division-boards crowded against them, the rest of the hive being left vacant. Above this are placed the supers and cover, and above this a bottom-board, the hive of brood and queen just removed, and another cover over all. The old field bees will, of course, enter what they believe to be their old hive, will find themselves queenless, but will continue storing in the supers. The old queen in the upper hive will keep on laying, but the colony will be so weakened by the loss of field bees that the idea of swarming

will be given up and the queen-cells torn down. Ten days after swarming the lower story is replaced with the upper hive of bees, brood, and queen, and the hive with two frames of brood, which now has a few queen-cells, may be saved for a nucleus and placed on a new stand, taking pains to contract the entrance, so the brood will not become chilled.

Production of Extracted Honey.

If producing extracted honey, and the supers contain foundation, the full set of frames should be used until after the foundation is drawn out. After that, at least one comb should be removed and the extra space evenly divided between the combs. This will give more room for storing honey, and will result in combs nicely bulged and therefore easily uncapped. Super room should be supplied by giving the new super next to the brood-chamber, as in comb-honey production, only more room may be given and thus the danger of swarming may be lessened.

Until a week after the beginning of the honey flow the queen may be allowed access to two stories, keeping brood in both. This gets the bees into the habit of storing above, so that when the queen is confined by the excluder to one story the bees store above more readily. Whenever combs of brood are left separated from the queen by an excluder, the bees frequently start queen-cells on such combs. These queen-cells should be torn down seven or eight days after separating the queen from the brood.

Except when brood is separated from the queen it would seem that the queen-cells should not be started if our directions have been carefully followed. Yet this sometimes happens. In case one finds such queen-cells we suggest the plan given in the last issue. Place on the old stand a hive containing the queen, nine frames of comb or foundation, and at the center one comb with a small patch of eggs and young larvæ, and above this a queen-excluder, supers (two of which contain practically empty combs), and, on top of all, the hive of brood with capped queen-cells torn down. No cover and hive-bottom intervene between the supers and upper hive of brood as in the comb-honey plan. Eight days later move the upper story to a new location and leave with one capped queen-cell, and contracted entrance to prevent the chilling of the brood. The queen-cell left should be the best one—long yet plump, with well-defined corrugations on the sides. To prevent injuring the unhatched queen, queen-cells should be handled carefully, and held in the same position in which they were built on the combs. If no increase is wanted, tear down all queen-cells about eight days after placing above, and leave the brood to hatch and increase the original colony. When applying this plan early, while the nights were still cool, we suggested putting the hive of brood immediately above the excluder; but during the honey

flow, when it is more difficult to prevent swarming, there should be at least two supers of practically empty combs between in order to make the bees of the upper brood-nest feel more queenless, and therefore raise a nicer lot of queen-cells, and also to prevent the nurse bees supplied with royal jelly from going below and starting queen-cells in the lower brood-chamber.

Natural Swarming.

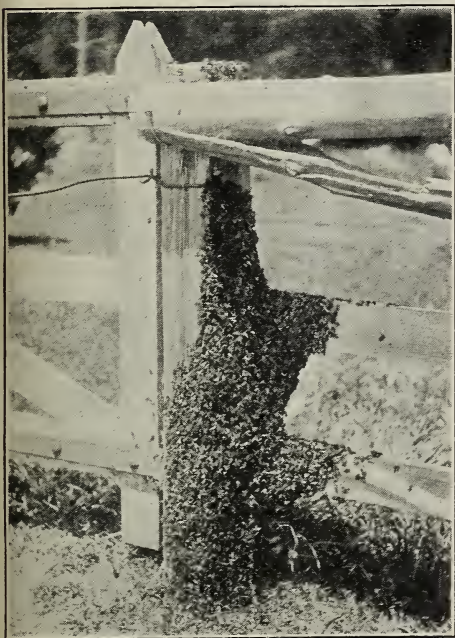
There may be some who desire an easier way of making increase rather than using either method given under the last two headings. For their benefit we shall describe natural swarming and an easy way of hiving the swarm.

Soon after the queen-cells are sealed, the swarm "issues," that is, about two-thirds or three-fourths of the bees, together with the queen, leave the old hive and go to a new home, which quite often is a hollow tree in the woods. If one happens to be near the hive just before the swarm leaves, he may notice an unusual activity of bees running about the front of the hive; and if the hive is opened, there he may find great excitement and a busy rushing of bees here and there in every direction. In a few minutes the bees begin pouring from the hive by the thousands until in three or four minutes the air is filled with a great cloud of humming bees. These swarming bees are very good-natured, since they have filled their honey-sacs with honey, which is partly to sustain them until again able to gather nectar from the fields and partly to convert into comb on arrival at the new home. After flying about for a few minutes they cluster or form in a large ball, usually on a branch of a tree not far from their hive, waiting to make certain that the queen is with them before they leave for their new home, which in most cases has probably been chosen by scout bees sent out several days previously.

If the queen has been clipped she will be found climbing helplessly about on the grass in front of the hive, attempting to join the swarm, which, of course, she is prevented from doing on account of her clipped wings. After caging her in a spiral cage, put her in the shaded entrance of the new hive of combs or foundation which has been placed on the old stand, facing in the same direction as the original hive. The hive should also contain one comb with young larvæ (very important in case of a queen with wings), and above this hive should be placed the supers removed from the old colony, for the new colony will now work with renewed vim, while the old colony will be composed mostly of young bees, and will probably be without a laying queen for as much as two weeks, and will not be in condition to store any surplus for some time.

In a short time the bees will discover that the queen is not with them, and will, therefore, return to the hive. After they have begun running in nicely the queen should be liberated and allowed to run in with the rest.

After the swarm has entered the new hive, the "old" or "parent" colony may be placed close beside the new one, facing in the same direction, and the entrance contracted to a space only large enough for two or three bees to pass at a time. This old colony may be allowed to raise its own queen or the queen-cells may be torn down and a laying queen introduced. In about a week, during the middle of the day, when many bees are



Bees do not always cluster in convenient places on branches of trees where they may be easily shaken off. They may cluster on some unshakable object when it will be necessary to capture them, as described in the next column.

flying, move the old hive to a new stand. Many of the flying bees will return; and, finding their hive gone, will enter the new one. This increases the size of the new swarm and leaves so few bees in the old hive that there is but little danger of an after-swarm. Rather than place the old colony beside the new and then move to a new location in a week or so, some move to a new location at the time of swarming, and prevent after-swarms by tearing down all but one good queen-cell.

At first thought one might wonder that the bees should take the trouble to raise so many queen-cells when but one would be sufficient; but if the one cell should for any reason fail to hatch the colony would be entirely helpless, having no means of raising another. Therefore quite a number are provided; and when the first queen hatches she partly tears down the other capped cells so that the other queens will not hatch; or if two or more hatch at the same time they soon fight it out so that only one survives.

Two or three weeks after the swarm issues, the old colony should be examined for eggs. If none are found, it will either mean that the queen has not yet begun laying or that she was lost in mating, and the colony is queenless. In either case the best thing to do is to give them a frame containing eggs and young larvae. If a queen is in the hive she will probably begin laying all the sooner, because of the presence of the larvae; and if the colony is queenless the bees will undoubtedly begin queen-cells, in which case a ripe queen-cell should be given them in a cell-protector or else a good laying queen introduced.

In order to hive a swarm that is accompanied by a queen with wings, the colony should be shaken into a basket attached to the end of a pole and placed on the ground in front of the entrance. If they do not seem inclined to enter, shaking them on the ground will usually start them. Generally a few of the bees take wing and return to the clustering place, so that it may be necessary to shake them from the tree or bush several times to make certain that the queen is also captured.

Usually bees cluster on the branch of a tree, in which case, if the queen has wings, and it is, therefore, necessary to capture the bees, the swarm may be easily shaken into a basket or other receptacle. When clustered as in the illustration, so that shaking is impossible, the bees may, by means of a soft feather or brush, or perhaps a handful of weeds, be gently brushed down on to a sheet spread on the ground beneath them. The corners of the sheet may then be gathered up and the bees carried to their new location, where the sheet may be again spread down, and the bees allowed to run into their new hive. A little shaking of the edges of the sheet furthest from the hive may perhaps cause them to enter the hive more readily.

Next Talk.

The next talk will explain the harvesting of the honey. It will explain how one may know when either comb or extracted honey should be removed from the hive, and how it may best be done without starting robbing. Also there will be a description of extracting, the arrangement of the equipment, and the various steps in the process. Tho it will not be necessary, still if the beginner can visit an experienced beekeeper and watch him extract, perhaps also helping him if allowed to, he will doubtless pick up additional hints.

Beginner's References.

The beginner will be interested in "The Spirit of the Hive" page 357, but right here we again caution him not to give room so fast that there are a lot of unsealed sections at the end of the honey flow.

We also call the beginner's attention to some of the "Straws" 368, "Siftings" 370, "Side Line Department," page 373. "Two Colonies of Wild Bees," page 379, and "Gleaned by Asking," page 386.

FOR almost if not quite 50 years we have been having visitors here at the Home of the Honeybees; and they come from not only all over our nation; but oftentimes from away across the seas. For many years after the business was started it was part of my work to receive said visitors and pilot them over the premises out in the apiary, as well as thru the different parts of the manufacturing departments. Some friend (I can not remember who it was) once said something like this:

"Mr. Root, sooner or later, when he meets a stranger, asks him three questions, or something equivalent to three questions. First, 'Are you, my friend, a professing Christian? Do you stand up before the world as a follower of the Lord Jesus Christ?' After having received some sort of reply to this first question, the next is pretty sure to be, 'Are you a married man?' After that comes the question, 'Have you some children?'"

In thinking it over of late I do not know but, even tho the 50 years have gone by, I still feel like asking the above, in about the order I have given them, of any visitor who cares to see or know more about A. I. Root. I am sorry to say, however, dear friends, that I did not follow the above program, in the order I have given it myself. I got married first, and then waited till there were two or three children given the dear wife and myself; and *then* thru God's providence I began to think "better late than never"; and to make amends I started these Home papers which many of you have been reading for close on to 50 years.

Like most young married people, Mrs. Root and I did not make any plans for children "just yet"; that is, altho of course we intended to have children after a few years we were in no hurry to assume the responsibilities of parentage; but as it often happens, when man proposes, God disposes; and with early prospects of first one little prattler and then another we were almost inclined to rebel.

There is one more text over in Genesis that I wish to quote. It is in the 16th verse of the 3d chapter: "And God said, I will

OUR HOMES

A. I. ROOT

And God said, Let us make man in our image, after our likeness.—GEN. 1:26.

And the Lord God said, It is not good that a man should be alone; I will make him a help meet for him.—GEN. 2:18.

And God blessed them, and God said unto them, be fruitful and multiply and replenish the earth, and subdue it.—GEN. 1:28.

greatly multiply thy sorrow and thy conception. In sorrow thou shalt bring forth children." But after the little prattler had made his or her advent, and cheered and brightened the household by his or her comical ways, our sorrow turned to gladness; and, dear friends, the gladness has

not only lasted but increased year by year; and that is what I want to talk about after this long preface.

I have told you in the past, or tried to tell you, with what great pleasure Mrs. Root took each little prattler by the hand, and molded and fashioned the new life. Something transpired less than ten days ago that will give you a better glimpse of the dear woman than anything else I can think of.

On our trip from Bradentown, Fla., to our Ohio home, we were obliged to change cars three times; and almost every time we had to make a change there was very little time to do it. In the great city of Cincinnati there were such crowds that she for a little time got lost. Of course you will ask what in the world I was doing that I did not take her arm. Well, I tried to, but she shook me off and declared she was able to take care of herself. Well, when we got into the big city of Cleveland she was lost again. She was right close by me when we were getting off the car. When I got off the step to the car, great crowds were there, but no Mrs. Root. When I began to be worried she made her appearance at the top of the steps; but to my great astonishment and consternation she was trying to get thru the door with a great bundle of something which looked like bedding. I said to myself, "Why, the poor woman has gone crazy, and imagines that all of that stuff belongs to us." But when I caught sight of her face she did not look at all crazy. In fact, she was smiling, and looked particularly happy and joyous. I took the bundle at the bottom of the steps and started to ask, "Why, what in the world, Sue, are you doing with this?" Then right behind her I caught a glimpse of a very little woman lugging a pretty good-sized baby, and then I too began to laugh. I

verily believe that, if the house were on fire, and Mrs. Root were to come across a little woman tugging at a bundle with a baby in her arms, she would take the baby and the bundle first and see to the house on fire afterward. Now, this bundle was not so very small, because I lugged it to the top of three pairs of stairs and was then in such a hurry to "catch up" that I did not half listen to the thanks of the little woman who held the baby.

The moral to this incident I have just been telling is that Mrs. Root has made it her lifework to look after and guide and care for not only her own babies, but, so far as comes within her sphere, the babies of others.

A very good friend of mine who has charge of an important branch office of the A. I. Root Co. visited us not long ago. I have been scolding him for years and years because he does not get married. On his last visit I said, "Look here, my friend, if I had done as you do, these two men, Ernest and Huber, would never have had an existence, and I very much doubt whether there would have been any A. I. Root Co."

Dear reader, do you see the point? Our lamented friend Roosevelt told the world there would be race suicide if men and women did not "*get married*," and, more important still, raise children and "replenish the earth and subdue it," after they did get married.

As the years go, it rejoices my heart more and more to see the dear children, sons-in-law and daughters-in-law, as well as sons and daughters, lift the burdens that keep coming up before me with my failing strength. When I first got on to the idea of an automobile propelled by wind power, some of the sons and sons-in-law said with cheerful alacrity, "Go ahead, father. Get yourself a nice little car and put up the windmill and we will see that there are funds to carry out the experiment." If they did not say it in words, they said it in acts. Huber and his little daughter Catharine (named after the sister of the Wright brothers) recently made a trip to Florida to see the experiment of harnessing the wind. If he does not tell you about his trip himself, I will try to do it later on.

Well, when Mrs. Root and I planned to take the trip home, about May 1, I confess that I felt worried somewhat as regard to the responsibility resting on a man close to 80 years of age for a trip that takes two days and two nights, or a little more, of constant travel. Now, altho I had not said a word, it seems the dear children had the matter in mind; and just

to relieve us of responsibility, and to make us feel safe and avoid our being worried, one of our grandsons volunteered to go down and pilot us home. By the way, I have been told that *he, too* was just wild to see the windmill and electric apparatus. They knew the exact date father and mother expected to arrive in Cleveland, and so Howard Calvert, my grandson, started so as to reach us the day before we took the cars. An accident happened, however, between Tampa and Bradentown. Two steamers that were in the habit of making daily trips were both disabled at about the same time, and the best Howard could do, was to manage so he could reach Bradentown at midnight, the day before we were to start. He had read what I have said about my good friend Kaiser at the Bradentown electric-power house; and before starting to walk to our home, a mile out of town, he walked over to the power house, and, sure enough, Mr. Kaiser was right at his post, and the two "electricians" had a big visit in a very little time, even if it was after midnight. Let me now digress a little.

As we were picking up our stuff that morning, Mrs. Root and I were up unusually early, and had been very busy packing our valises, putting things away, etc., when all at once an apparition was seen at the open doorway. It was a young man apparently just out of bed, his luxuriant head of hair all tangled up, and a broad grin on his face. My first thought was that I had lost my senses, but I finally decided the young man was *not*, after all a "phantasmagoria." Mrs. Root said she had the same feeling, saying that for a while she was frightened. Finally I managed to say, "Howard Calvert! How on earth did you come here at this time of the night?"

"Why, I slept all night in that wind electric automobile. I got in so late that I knew it would break your rest when you need it so much before your long trip, and so I stayed out there. I saw the electric light which I had been so anxious to see run by wind power, and now I am here to go back with you and look after your wants and needs."

Then we thanked God again, not only for the dear children he in his infinite love had sent us, but also for the ten equally dear grandchildren. And that is not all. This occasion seems to be the right and proper one to introduce to you Howard Calvert, 28 years of age, and the father of two beautiful little girls—great-grandchildren of A. I. Root and his wife. Howard not only lifted the burdens—three great heavy valises—but he made the arrangements for checking the trunks, getting the tickets,

various transfers, looking after mishaps that almost invariably occur, and got us home in such good shape that Mrs. Root never had a bit of car sickness—something she is greatly subject to; and I think it was perhaps the first trip she ever made between Florida and Ohio without more or less of it.

Now, my friend—yes, all who see these pages, again I say to you personally, no matter who you are, where you are, how old or how young, if you are not already a follower of the Lamb of God who taketh away the sin of the world, make it your very first duty to commence now, this very minute, by acknowledging the great Creator who made you in his own image—commence right *now* to acknowledge him as your heavenly Father, and put your trust in that “Son of God,” of whom He said from the heavens, “This is my beloved Son in whom I am well pleased.” Make this Son your daily confidant, your guide, and your friend.

In regard to the second, I have been cautioned about advising *everybody* to get married. Of course, it will be taken for granted that such advice is to people of suitable age to be married. As a rule I would suggest that both should be very close to or past twenty; and I do not believe, while I think of it, that I would advise a good Christian woman to marry an intemperate man with the view of making him better. Let him get “better” first, and let sufficient length of time elapse so that he can prove that he really *is* better. Let him lay his intemperate habits at the feet of the dear Savior “who taketh away the sin of the world.” Perhaps something should be said about marrying a man or woman whom you do not love. I would suggest it is safer to marry a good professing Christian whom you *think* you do not love than to marry an unchristian man that you think you love. And here is a point: One of Satan's great schemes is to persuade those already married, that they do not love each other. This is not only humbug and nonsense, but it is criminal. I think I am safe in saying you can love the companion you already have if you will only set about it. Do not ever let Satan even *whisper* to the contrary. By the laws of God and man you are bound to stick fast to your oath taken before God and men, when you two were united. Do not let such a thought of divorce even get in sight.

Lastly, be fruitful and multiply. Do not be satisfied with one child or two. Give to the world men and women who fear God and who will be a blessing to humani-

ty. Your old friend, A. I. Root, not only did find his burdens lifted by his grandson Howard, but our long trip together, gave me a chance of becoming better acquainted with him than I had ever been before. To give you a little glimpse of him I give below a clipping from the *Hummer*, a little periodical of which he is the editor:

At last we are glad to be able to say that we have seen A. I. Root's electric windmill. We saw it at midnight for the first time down in Bradentown, Florida, and it was faithfully turning the little electric generator, storing up juice in the electric automobile battery, and converting wasted energy into useful power, light, and heat—another case of a dream come true! The vision of the man who has persisted in making his dream come true is a prophecy of the future, a solution to the problem which future generations will have to face when the coal supply is used up in this country, when the gas supply is exhausted, and when the great oil wells have been pumped dry.

Then, when these are all consumed, humanity will look to powers in the air, the gentle breezes, and the mighty trade winds. God has always provided, and he always will provide as long as the world lasts. By utilizing these forces which have been ever present but which have been but little used, save for pumping water, we shall be able with but small initial outlay to have our own private power plants in our own back yards. We then can get our lights and heat from the air, run our automobiles from wind-made electricity, and probably do many other things just as A. I. Root is doing with his electric windmill in Florida. As he predicted the success of the Wright Brothers' airplanes several years before aviation was perfected, so will the success of his prophecy regarding wind power be assured in years to come—just how many years we will not venture to say. But as on that balmy Florida midnight we looked up at the big wheel, turning, turning, ever turning, generating electricity enough to light several lights, and yet turning with such a slight breeze stirring that it was scarcely perceptible where we stood on the ground, we knew then that the electric windmill was a success. The voice of the night told us, and that voice never is wrong.

FROM SAN DIEGO, CAL., TO JACKSONVILLE, FLA., IN 19 HOURS AND 15 MINUTES.

I have mentioned one or more times that it was my great privilege to be with the Wright brothers when they first made their flying machine start out and turn around and come back to the starting place. Therefore you can realize with what interest I note progress in flying as the years go by. While flying machines were first used for war purposes, somehow I did not feel like keeping track of them as much as I do now when war is at an end. Below is a clipping from the *Cleveland Plain Dealer*, dated from Fort Worth, Texas, April 18:

Maj. T. C. McAuley, commander of Taliaferro field, who has flown from coast to coast in 20 hours at an average speed of 137 miles an hour, arrived here safely this morning from Jackson, Miss., where he spent last night. He landed in his plane at 11:30 a. m.

Maj. MacAuley flew 5,500 miles in 44 hours and 15 minutes. His flying time across the continent

from San Diego to Jacksonville was 19 hours and 15 minutes, setting a new record.

Of this distance, 880 miles, from Tucson, Ariz., to Sweetwater, Tex., were covered without a stop. He used a de Havilland plane with a Liberty motor. The motor, according to the airman, never missed a stroke, and the only work done was to remove two dirty spark-plugs.

Years ago Mrs. Root and I enjoyed the privilege of going by rail from San Diego to Jacksonville. So far as I can remember it took nearly a week. Well, from the above clipping it would seem *possible* for one to get an early breakfast in San Diego and get a late supper in Jacksonville all in one and the same day. May God be praised for what has come to pass, or perhaps, rather, for what is coming to pass.

TOBACCO FOR BEEKEEPERS.

The letter below from a veteran apiarist requires a little preliminary explanation. About 50 years ago there was a little meeting of beekeepers at an apiary out in the country. One of the friends used the smoke from a cigar to drive the bees he was handling. Some of the boys present declared they were going to learn to smoke so as to have the smoke always handy as did this operator. I protested somewhat as follows:

"No, no boys. Do not learn to smoke cigars nor to use tobacco in any form. If you will give me your promise, and let me put it in print in GLEANINGS (just started), I will make you a present of one of my newly invented bellows smokers."

They gave me the pledge. It was printed in GLEANINGS with the offer to do likewise with any young beekeeper who would give me a like promise in writing. Over 1,000 pledges came in. I supposed, when I made the offer, that it was going to cost me quite a little sum of money, which was not very *plentiful*, I assure you, at that time. But to my great surprise and astonishment the offer was commented on in the daily papers as a queer sort of eccentricity. It not only advertised *bee culture*, but it resulted in the sale of over 20,000 of the new bee-smokers in less than a year. Now you can read the letter below:

Friend A. I. Root:—I want to give you a little of my experience with tobacco. When I was a boy, just after the Civil War, I started to use tobacco—and I certainly did use it. I was taking GLEANINGS at the time you made your offer of a smoker to those that would quit using tobacco. I did not have much money at the time and I needed a smoker very much, but the hankering I had for tobacco made me forget all about trying to get a smoker in that way. So time rolled along until 12 years ago this summer, when I quit. I was using at that time a quarter-pound plug a day and six to eight cigars, besides smoking a pipe nearly all the time. I will tell you why I quit so suddenly. I went blind—could not see two feet ahead of me—so I went to Saginaw, Mich., to see an eye specialist. After he had got thru the examination, which

took him all day, he said that the cause of my trouble was in using either too much whisky or too much tobacco. I told him I did not drink whisky, but did use lots of tobacco. This was in the spring of the year, and it took him all summer to fix me up so that I could see again. I lived about 18 miles south of Saginaw at the time and had to make two trips a week to see him. Now you can see what my experience has been with tobacco. The name of the specialist that I went to see is Dr. Slack. If any tobacco fiends see this, they can write or go to see the doctor, and I think he can cure them.

Aitkin, Minn., Apr. 7, 1919.

WM. CRAIG.

A KIND WORD, NOTWITHSTANDING OUR RECENT HOSTILITIES.

I do not know, friends, whether you feel as I do; but whenever I see or hear the severe criticisms that are now so frequent in regard to Germany as a *whole*, I feel pained. Some of the best friends I have in the whole wide world are German; and I can not help feeling, and have felt all along during the war, that, notwithstanding the terrible acts of Germany as a nation, there are kind and loving hearts there as well as in any other part of the earth. I tried to think it possible that many of these people—perhaps the greater part—were helpless during the terrible conflict that we now hope is over and over for ever. Now you may read the letter below:

I wish to subscribe again to your paper, GLEANINGS IN BEE CULTURE. Since the beginning of hostilities between America and this country I have been unable to obtain any numbers. As I missed your paper very much I would ask you kindly to begin sending it as soon as postal communication permits. The amount due for the subscription for the remaining year I will send by postal order.

I must add that I pray to God that I may not find a change in the editorship of the Home department, but that A. I. Root is still enjoying good health.

P. M. FERRO.

Gravosa, Dalmatia, Europe, Feb. 19, 1919.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cents per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeyer & Arpe

FOR SALE

HONEY LABELS.—Most attractive designs. Catalog free. Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

SEND TODAY for samples of latest honey labels. Liberty Pub. Co., Sta. D, Box 4E, Cleveland, Ohio.

FOR SALE.—**SUPERIOR FOUNDATION**, "Best by Test." Let us prove it. Order now. Superior Honey Co., Ogden, Utah.

FOR SALE.—Drawn combs—brood and extracted, 10c each. Theodore Fluegge, 33 No. Elgin Ave., Forest Park, Ills.

FOR SALE.—New and slightly used hives and supers, sections, extracting combs, etc. Price satisfactory. R. Hibbard, Calcium, N. Y.

PORTER BEE ESCAPES save honey, time, and money. Great labor-savers. For sale by all dealers in bee supplies. R. & E. C. Porter, Lewistown, Ills.

SPECIAL SALE.—One-story 8-frame dovetailed hives, in flat, with telescope $\frac{3}{4}$ wood covers, in packages of five at \$10.00 per package. A. G. Woodman Co., Grand Rapids, Mich.

FOR SALE.—Apiary of 45 colonies, whole or part, equipped for comb or extracted business, all in fine condition. Stop 62, North Ridgeville, Ohio. P. O. address, W. R. Bartlett, Elyria, Ohio.

FOR SALE.—Comb foundation at prices that will save you money. Wax worked for cash or on shares. Send for price list. E. S. Robinson, Mayville, N. Y.

FOR SALE.—If you wish to know where to save money on bee supplies send for our new price list. It may be worth your trying. H. S. Duby & Sons, St. Anne, Ills.

FOR SALE.—Second-hand 60-lb. cans, two to the case, 50c per case f. o. b. New York. Also second-hand maple-syrup cans at 10c each. Hoffman & Hauck, Inc., Richmond Hill, N. Y.

FOR SALE.—Good second-hand 60-lb. honey cans, two to the case at 60c per case, f. o. b. Milwaukee. Terms cash with order. E. R. Pahl & Co., 120 Huron St., Milwaukee, Wis.

FOR SALE.—About 40 new and used hives, 10-frame Hoffman; 1200-lb. honey tank; 2-frame Novice extractor. Oscar Carlson, Box No. 398, Sandwich, Ills.

FOR SALE.—Six-inch foundation-mill with 2-inch rolls in good condition; also 17 lbs. of thin super foundation, size $3\frac{3}{4}$ in. x $15\frac{1}{2}$ in., in 2- and 3-lb. boxes, price 80c per lb. W. D. Wright, Altamont, N. Y.

FOR SALE.—Mr. Beekeeper of Alabama, Florida, Georgia, Louisiana, Mississippi, and Tennessee, send me a bill of your wants of bee supplies and let me make you good prices on the same. M. Bates, Greenville, R. D. No. 4, Ala.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Beeware. Our new price list will interest you. We pay 36c in cash and 38c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

WANTED.

Beeswax wanted. Highest prices paid. State quantity and quality. E. S. Robinson, Mayville, N. Y.

WANTED.—Comb and extracted honey, also beeswax. Send samples. C. S. Fryer, 386 Halsey St., Portland, Ore.

BEESWAX WANTED.—For manufacture into **SUPERIOR FOUNDATION**. (Weed Process.) Superior Honey Co., Ogden, Utah.

WANTED.—Comb and extracted honey, car lots and less. Mail sample, quantity, and price. W. Morris, Yonkers, N. Y.

WANTED.—Extracted honey, all kinds and grades for export purposes. Any quantity. Please send samples and quotations. M. Betancourt, 59 Pearl St., New York City.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted. Hoffman & Hauck, Inc., Richmond Hill, N. Y.

WANTED.—Extracted honey in both light and amber grades. Kindly send sample, tell how honey is put up and quote lowest cash price delivered in Preston. M. V. Facey, Preston, Minn.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

FOR SALE.—Cowan extractor that never has been used. Two-frame machine, \$25.00. Mann Bone Mill—advertised in May. A few more 4-frame nuclei in June at \$5.00 each, without queens.
B. F. Averill, Howardsville, Va.

FOR SALE.—25 metal-roof covers, 25 reversible bottoms, 100 deep extracting-bodies without frames, all dovetailed, 10-frame size, Lewis ware, spotless, perfect, painted well two coats white, freight prepaid, \$125.
B. W. Wells, Appleton, Wis.

AUTOMOBILE REPAIRS

AUTOMOBILE owners should subscribe for the AUTOMOBILE DEALER AND REPAIRER; 150-page illustrated monthly devoted exclusively to the care and repair of the car. The only magazine in the world devoted to the practical side of motoring. The "Trouble Department" contains five pages of numbered questions each month from car owners and repairmen which are answered by experts on gasoline-engine repairs. \$1.50 per year. 15 cents per copy. Canadian subscriptions \$1.50. Postals not answered. Charles D. Sherman, 107 Highland Court, Hartford, Conn.

WANTS AND EXCHANGE

WANTED.—Brood-foundation mill.
W. A. Latshaw Co., Carlisle, Ind.

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax.
Superior Honey Co., Ogden, Utah.

WANTED.—Used hives and supers, foundation mills, extractors, bees, and bee equipment. State lowest cash price wanted.
W. A. Latshaw Co., Carlisle, Ind.

WANTED.—To exchange 1915 model Harley-Davidson motorcycle in A-1 condition for bees, honey, or part cash. No. 3 Fox typewriter, same terms, or \$25 cash.
H. E. Coffey, Box No. 246, Sealy, Texas.

WANTED.—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cts. a pound for wax rendered. The Fred W. Muth Co., 204 Walnut St., Cincinnati, O.

WANTED.—Beeswax. We will pay for average quality beeswax delivered at Medina, 38c cash, 40c trade. We will pay 1 and 2c extra for choice yellow. Be sure your shipment bears your name and address as shipper so we can identify it on arrival.
The A. I. Root Co., Medina, Ohio.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1919 catalog. We will buy your share of the wax for cash or will work it into foundation for you.
Dadant & Sons, Hamilton, Illinois.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list.
Jay Smith, R. D. No. 3, Vincennes, Ind.

Well-bred bees and queens. Hives and supplies.
J. H. M. Cook, 84 Courtland St., New York.

Hardy Italian queens; one, \$1.00; 10, \$8.00.
W. G. Lauver, Middletown, Pa.

FOR SALE.—1919 Golden Italian queens, price list free. Write, E. E. Lawrence, Doniphan, Mo.

Queens on approval. Bees by package or colony.
A. M. Applegate, Reynoldsville, Pa.

Golden Italian queens, untested \$1.00 each, six for \$5.00.
E. A. Simmons, Greenville, Ala.

Get my price list on queens and bees, the best three-band and five-band honey-gatherers.
H. A. Ross, Evansville, Ind.

FOR SALE.—Golden Italian queens, untested, \$1.00 each; tested, \$2.00.
J. F. Michael, Winchester, Ind.

Italian queens of "Windmere" for sale; untested, \$1.00; six for \$5.50; tested, \$1.50 each. Prof. W. A. Matheny, Ohio University, Athens, Ohio.

FOR SALE.—Leather-colored untested Italian queens, June and July, \$1.00 each, 6 for \$5.00.
J. M. Cutts, Montgomery, R. D. No. 1, Ala.

PHELPS' GOLDEN QUEENS will please you. Mated, \$2.00. Try one and you will be convinced.
C. W. Phelps & Son, Binghamton, N. Y.

THREE-BAND Italians only. Untested queens, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40.00; 100, \$75.00. H. G. Dunn, The Willows, San Jose, Calif.

"She suits me" Italian queens, \$1.15 each from May 15th to Oct. 15th; 10 or more, \$1.00 each.
Allen Latham, Norwichtown, Conn.

FOR SALE.—Indianola Apiary offers Italian bees and queens; tested, \$1.50; untested, \$1.00.
J. W. Sherman, Valdosta, Ga.

When it's GOLDEN it's Phelps'. Try one and be convinced. Virgins, \$1.00; mated, \$2.00.
C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Golden Italian queens ready April 15; \$1.00 each; \$10.00 per dozen.
W. W. Talley, Greenville, R. D. No. 4, Ala.

FOR SALE.—Three-banded Italian queens, untested only, one, \$1.50; six, \$8.50; dozen, \$16.00.
P. C. Chadwick, 725 E. High Ave., Redlands, Calif.

FOR SALE.—3-band and Golden queens and nucleus. Queens, 1, \$1.50; 6, \$7.50.
Allen R. Simmons, Claverack, N. Y.

FOR SALE.—Bright Italian queens at \$1.00 each, \$10.00 per doz. Ready April 10. Safe arrival guaranteed.
T. J. Talley, R. D. No. 4, Greenville, Ala.

ITALIAN QUEENS carefully raised from some of the best stock. Just hatched, 75c; untested, \$1.00. Orders booked now for summer and fall.
James McKee, Riverside, Calif.

FOR SALE.—Three-band Italian queens ready June 1. Untested, each, \$1.00; 12, \$10.00; 100, \$80.00. Satisfaction and safe arrival guaranteed.
A. E. Crandall & Sons, Berlin, Conn.

FOR SALE.—Business-first queens. Laying untested queens, \$1.00 each; select untested, \$1.25; tested queens, \$2.00; select tested, \$2.50. Price list for asking. M. F. Perry, Bradentown, Fla.

GOLDENS THAT ARE TRUE TO NAME. Untested queens, each, \$1.25; 6, \$6.50; 12, \$11.50; 50, \$40.00; 100, \$75.00.
Garden City Apiaries, San Jose, Calif.

FOR SALE.—Golden Italian queens of an improved strain; the bee for honey, hardiness, gentleness, and beauty. Untested, \$1.00; tested, \$2.00.
Wallace R. Beaver, Lincoln, Ill.

FOR SALE.—Golden Italian queens, untested, 85c; 6 for \$4.75; 12 for \$9.00. Tested, untested, \$1.00; 6 for \$5.50; 12 for \$10.00. Tested, \$1.25; select tested, \$1.50; extra select tested, \$2.50. No foul brood. No bees for sale.
D. T. Gaster, Randleman, R. F. D. No. 2, N. C.

FOR SALE.—North Carolina-bred Italian queens of Dr. C. C. Miller's strain of three-band Italian bees. Gentle and good honey-gatherers. May 1st until July 1st, untested, \$1.25 each, \$12.00 per doz.; tested, \$1.75 each, \$18.00 per doz.; select tested, \$2.25 each. Safe arrival and satisfaction guaranteed. L. Parker, Benson, R. D. No. 2, N. C.

FOR SALE.—Good Italian queens, tested, \$1.50; untested, \$1.00; 1-lb. package, \$3.00; 2-lb., \$5.00; nuclei, 2-frame, \$4.00; 3-frame, \$5.50.

G. W. Moon, 1904 Park Ave., Little Rock, Ark.

FOR SALE.—Full colonies in new standard eight-frame hives, each with tested Italian queen, full sheet wired combs, hustlers, easy to handle; no disease here. J. Ford Sempers, Aikin, Md.

FOR SALE.—Three-banded leather-colored Italians, of the celebrated Moore strain with tested queens, reared last season, in eight-frame Langstroth hives, at \$12.00 a colony.

John Hutchinson, Lake City, R. D. No. 2, Mich.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$2.00, 6 for \$7.50.

Wm. S. Barnett, Barnetts, Va.

FOR SALE.—Golden Italian queens which produce gentle yellow bees, the hardest workers we have known, \$2.50 each. When you wish to improve your stock always buy the very best. Wildflower Apiaries, Trust Bldg., Little Rock, Ark.

Three-banded Italian queens and bees by the pound, also nucleus, in Root's shipping-cases, if preferred, or buyer furnish own cages. Send for price list. J. A. Jones & Son, Montgomery, Ala., R. D. No. 1, Box 11a.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are GREAT HONEY-GATHERERS, BEAUTIFUL and GENTLE. Virgins, \$1.00; mated, \$2.00.

C. W. Phelps & Son, Binghamton, N. Y.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; May and June, untested, each, \$2.00; six, \$7.50; doz., \$14.00; tested, \$4.00; breeders, \$5.00 to \$20.00. J. B. Brockwell, Barnetts, Va.

FOR SALE.—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, \$1.25; 12 queens, \$14.00. One pound of bees with queen, postpaid, \$6.00. Safe arrival and satisfaction guaranteed.

M. Bates, Greenville, R. D. No. 4, Ala.

FOR SALE.—A limited number of bees and queens for May delivery from either home apiaries or South Carolina. Safe arrival guaranteed if shipped by express. Parcel post shipments at buyer's risk. We invite correspondence as to details and price. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—Three-banded Dr. Miller and Walker Italian queens, ready in May, untested, \$1.25 each; 6 for \$7.00; 12 for \$12.00; select \$1.50 each; 6 for \$8.00; 12 for \$15.00; tested, \$2.50; select tested, \$3.50 each. Orders filled in rotation. Queen circular and testimonials sent free. Curd Walker, Queen-breeder, Jellico, Tenn.

HOLLOPETER'S Italian queens ready in June, untested, one \$1.75; six, \$9.00; July, one, \$1.50; dozen, \$15.00. Quantity price on application, delivery after July 10. These prices guarantee you safe arrival of really high-grade Italian stock, more efficient service and wings clipped when desired.

J. B. Hollopeter, Rockton, Pa.

One of the best queen breeders in the United States is now raising queens for us from selected leather-colored Italians. We offer warranted queens at \$1 each or \$90 per hundred. Tested queens, \$2 each. Satisfaction and safe delivery guaranteed. Queens ready now for immediate delivery. Order now as our supply is limited. The Foster Honey & Mercantile Co., Boulder, Colo.

FOR SALE.—Quirin's hardy northern-bred Italians will please you. All our yards are wintered on summer stands; more than 25 years a commercial queen-breeder. Tested and breeding queens ready almost any time weather permits mailing. Untested ready about June 1. Orders booked now. Testimonials and price for asking.

H. G. Quirin, Bellevue, Ohio.

FOR SALE.—Three-band Italian queens. Untested queen, \$1.25; six, \$6.50; twelve, \$11.50. Tested queens, \$2.50 each.

Robert B. Spicer, Wharton, N. J.

FOR SALE.—Italian queens, golden, and three-banded, bred from best selected stock. Untested, each, \$1.00; 6, \$5.00; 12, \$10.00; select untested, \$1.50 each. Satisfaction guaranteed.

G. H. Merrill, Liberty, S. C.

NUCLEI.—One or two carloads, or less, 2- and 3-frame, July 1st delivery, \$4.00, \$5.00, and \$6.00 with young Italian queens. Write for terms and particulars.

Co-operative Honey Producers, Overton, Nev.

Victor's three-banded Italian queens of superior quality. All my queens reared by the best method known, from mothers that produced 240 lbs. of surplus honey last season. \$1.00 each straight, from June 1 to Sept. 1.

Julius Victor, Martinsville, N. Y.

HELP WANTED

WANTED.—Young man to care for about 80 hives of bees and help with garden work. Man with some bee experience. State experience and wages required. Good board.

F. C. Lalor, Barrington, Ills.

WANTED.—Experienced beeman and one helper. Fast workers and able to do heavy work. Prefer young men experienced in handling auto trucks. State all particulars in answering and wages wanted.

Ernest W. Fox, Fruitdale, S. D.

WANTED.—One experienced man, and students as helpers in our large bee business. Good chance to learn. Modern equipment and outfit, including auto truck, located near summer resorts. Write, giving age, height, weight, experience, reference, and wages wanted.

W. A. Latshaw Co., Clarion, Mich.

SITUATIONS WANTED

WANTED.—Experienced beekeeper wants employment in an apary in U. S. or Canada. Send letter, no telegram.

Morris F. Laughlin, Albin, Wyo.

WANTED.—Work in apary by single man 27 years old, good health and character, and some experience. Wages \$50.00 per month and board with railroad fare.

Wm. R. Lindsey, Buckner, R. F. D. No. 1, Ark.

MISCELLANEOUS.

Highest prices paid for old used postage and revenue stamps. A. Arnold, 1482 Broadway, New York.

FOR SALE.—Silver Spangled Hamburg eggs, and fine rare old Paganini violin.

Elias Fox, Union Center, Wis.

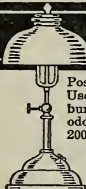
PRINTING SPECIAL.—100 letterheads, 100 billheads, 100 cards, 100 envelopes, \$1.90. Send for samples. Hawthorne Press, Yonkers, N. Y.

E. D. Townsend, the present owner of the *Domestic Beekeeper* bought beekeepers' supplies for the National Beekeepers' Association for several years. He is now buying for the subscribers of the *Domestic Beekeeper* at the same low manufacturers' price. Listen now what he has got up his sleeve: Any GLEANINGS' subscriber buying five dollars' worth of supplies thru the *Domestic Beekeeper* at catalog price, and sending along an extra dollar to pay for a year's subscription to the *Domestic Beekeeper*, will get in return a rebate check for a dollar, leaving the year's subscription to the *Domestic Beekeeper* absolutely free to you. Of course, if your order for supplies is larger than five dollars, you

will get a correspondingly larger rebate check on your order. One of our subscribers got a rebate check of \$40.00 on his order of supplies last month, March. It was just like getting money from home to him, as he sent us the same money he would have had to pay if he had bought thru the regular dealer in beekeepers' supplies. More and more, close buyers of beekeepers supplies are investigating the buying facilities of the *Domestic Beekeeper*. A word to the wise should be sufficient to cause you to send your next order for beekeepers' supplies to the Domestic Beekeeper, Northstar, Michigan.

NOTICE TO CALIFORNIANS.—This is to inform our customers that Mr. H. J. Bostwick of the Los Angeles office, an experienced business man, and one who was formerly connected with the A. I. Root Company at Medina, O., has been appointed to succeed Mr. W. A. Rafael, who resigned. Mr. Bostwick formally took charge of the office May 1st, 1919. Owing to the removal of our manufacturing plant into our own permanent headquarters at 1824 E. Fifteenth Street, Los Angeles, Cal., we were greatly delayed in filling our orders. The change took place just after the signing of the Armistice and it was almost impossible to get expert help to install old and new machinery in the new plant. We are pleased to inform our customers that we are now turning out as fine goods as were ever made and fully up to the standard of Root quality at Medina. We invite you to call at our office either at 1824 E. Fifteenth St., Los Angeles, or 52-54 Main St., San Francisco, Cal., where we shall be pleased to show you the quality of the goods turned out in our brand new plant. Thanking you for your past favors and hoping we may have the privilege of serving you further with goods that are up to date and ready to ship on short notice, we are,

The A. I. Root Company of California.



The "BEST" LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. **AGENTS WANTED EVERYWHERE.**

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

QUEENS

QUIRIN'S IMPROVED SUPERIOR ITALIAN BEES AND QUEENS. THEY ARE NORTHERN BRED AND HARDY. TWENTY-FIVE YEARS A QUEEN-BREEDER

PRICES	Before July 1st			After July 1st		
	1	6	12	1	6	12
Select untested....	1.50	8.00	15.00	1.00	5.50	10.00
Tested.....	2.00	10.00	18.00	1.50	8.00	14.00
Select tested.....	2.50	14.00	25.00	2.00	10.00	18.00

Breeders, the cream from our entire stock of outyards, \$5 each. Usually all queens can be sent promptly after June 10th.

Breeders, select tested, and tested queens can be sent out as early as weather will permit.

Send for testimonials. Orders booked now.

Reference—any large supply dealer or any bank having Dun's reference book.

H. G. Quirin, Bellevue, Ohio

PATENTS Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.
Chas. J. Williamson, McLachlan Building,
WASHINGTON, D. C.

IF YOU WANT STRONGER BEES AND MORE HONEY, LESS TROUBLE AND MORE MONEY USE

The E-Z-Way Bee Feeder



Feed your young swarms and weak colonies at once. This feeder is constructed out of high-grade material, and provided with a removable end-slide or door over the unbreakable transparent window that enables you to see the bees at their busy work. This is a novel feature not found in any other feeder. It is trouble-proof, sting-proof, robber-proof, and does not disturb the bees in feeding. A child can safely operate the E-Z-Way Feeder, it makes the work a pleasure for young or old, easily attached to any patent hive, box, or round gum, a small notch or hole in the outer rim or frame of the bottom-board, two screws placed, and your hive is ready for the E-Z-Way Feeder. It is simplicity and durability combined and will last a lifetime. Use any quart or half-gallon standard Mason Fruit Jar in connection with the Feeder; the syrup is fed thru a special cap on the atmospheric method. Attachments for three hives, instructions for using, feeding, and making the syrup are with each feeder. Bees can not escape thru the feeder when the jar is removed or the door is up; any one can operate it that can carry the syrup jar. No difference how many feeders you may have, it will pay you to order this one at our risk, under our 30-day money-back guarantee. A trial will prove its value to you. Price \$1 or six for \$5. Postpaid to any address in the United States. If your dealer does not have it, remit by money order, cash or stamps to

THE HOLDEN MANUFACTURING COMPANY, CLARKSBURG, W. VA.

Our Food Page—Continued from page 372.

Bake in a moderate oven, watching very closely lest they scorch. When done invert on a plate and serve bottom side up.

APRICOT DESSERT.

Canned apricots whipped cream
Loaf cake honey

Arrange whipped cream in circular shape on slices of loaf cake and press half a canned apricot, cut side down, into the center of the cream. The cream should be sweetened with honey. If this is carefully done the result looks almost exactly like a poached egg on toast and the combination of flavors and textures is delicious.

BUTTERSCOTCH PIE.

$\frac{3}{8}$ cup medium brown sugar	2 eggs
$\frac{1}{2}$ cup water	$\frac{1}{4}$ teaspoon salt
4 tablespoons flour	2 tablespoons pulverized sugar
3 tablespoons butter	1 teaspoon vanilla
1 cup milk	1 baked crust

Put the brown sugar and water over the fire until the sugar is dissolved, add the milk and when boiling thicken with the flour and butter rubbed together. Cook until the flour is thoroughly cooked, pour over the beaten egg yolks and salt, return to the fire and cook until smooth, stirring constantly. Flavor with the vanilla, and pour it into the baked crust and when partially cool cover with a meringue of the beaten egg whites and pulverized sugar and put into a

(Continued on page 401.)

BEE - SUPPLIES

FALCON LINE

We carry the largest supply in our section. Send us your inquiries.

Lowest Prices, *Quality Considered*

C. C. Clemons Bee Supply Co.
128 Grand Ave. KANSAS CITY, MO.

Established 1885



It will pay you to get our catalog and order early.

Beekeepers' Supplies

The Kind You Want and The Kind That Bees Need.

The A. I. Root Co.'s brand. A good assortment of supplies for prompt shipment kept in stock. Let us hear from you; full information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

FLOUR IS HIGH

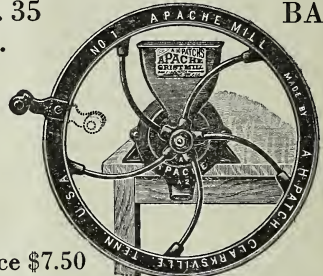
Why not live better and save money, too? Grind your wheat into Best Whole Wheat or Graham Flour. Your doctor knows how healthy these are. Make the BEST Corn Meal, the old-fashioned sort you can't buy at any price nowadays. Do all sorts of fine and coarse grinding with an

APACHE MILL

Wt. 35
lbs.

BALL

B
E
A
R
I
N
G



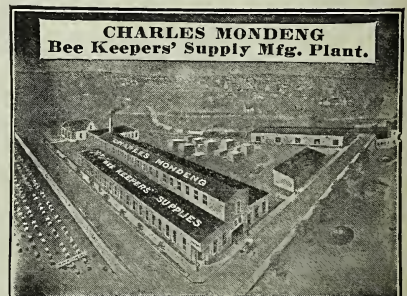
Price \$7.50

This Mill Makes Best Corn Meal, Graham Flour, Rye Flour, Chops, Hominy, Cracks Peas, Grinds Coffee, Spices, etc. Perfect adjustment for coarse or fine work. Will send Mill prepaid by Express \$7.50

APACHE CRIST MILL—Largest capacity, fastest grinding, easiest turning handmill. Does more, lasts longer.

A. H. Patch, Inc., Clarksville, Tenn.
The Blackhawk Corn Sheller Inventor
Invented 1885

\$30,000 WORTH OF Bee Supplies



All boxed ready to ship at once; 275,000 Hoffman frames, also Jumbo and Shallow frames, of all kinds, 100 and 200 in a box. Big stock of Sections, and fine polished Dovetailed Hives and Supers. I can give you big bargains. Send for a new price list. I can save you money.

Will Take Beeswax in Trade at Highest Market Price.

Charles Mondeng

146 Newton Ave., N. Minneapolis, Minn.

Our Food Page—Continued from page 400.

moderate oven until the meringue is set and lightly browned.

POPOVERS.

- | | |
|--------------------|--------------------------|
| 1 cup milk | ½ teaspoon salt |
| 1 cup sifted flour | ½ teaspoon melted butter |
| 1 egg | ter |

Place iron gem pans in the oven and heat while preparing the popovers. Put all the ingredients in a mixing bowl and beat with a Dover egg beater very thoroly. Oil the hot irons and half fill them with the mixture and bake in a moderately quick oven. The heat should be decreased after the first ten minutes. Serve with butter and honey. They may be used as a dessert by dropping a piece of fruit in each one before putting in the oven. They should bake from 30 to 40 minutes, depending upon the shape and size of the irons. Do not attempt to bake them in tin if you do not wish to lose your temper as they stick to tin closer than a brother.

SPONGE CAKE.

- | | | |
|---------------------------|-----------------|-------|
| 1 cup sugar | 2 tablespoons | lemon |
| 6 eggs | juice | |
| 1 cup sifted pastry flour | ¼ teaspoon salt | |

Separate the eggs, beat the yolks thoroly sift in the sugar and beat until creamy and

(Continued on page 402.)

"Special Crops" A high-class illustrated monthly journal devoted to the Growing and Marketing of Ginseng, Golden Seal, Senega Root, Belladonna, and other unusual crops. \$1.00 per year. Sample copy 10c. Address

Special Crops, Box G, Skaneateles, New York

BARNES'

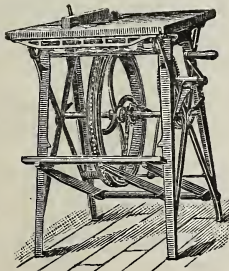
Hand and Foot Power Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices

W. F. & JOHN BARNES CO
545 Ruby St
ROCKFORD ILLINOIS

Distributors Root's Goods
FOR PENNSYLVANIA

Send for new special catalog featuring the "Simplex" Super, and giving instructions to beginners

Prothero, Bailey & Goodwin DUBOIS PA.

MASON BEE SUPPLY COMPANY
MECHANIC FALLS, MAINE

From 1897 to 1919 the Northeastern Branch of The A. I. Root Company

Prompt and Efficient Service

BECAUSE—Only Root's Goods are sold. It is a business with us—not a side line. Eight mails daily. Two lines of railway.

If you have not received 1919 catalog, send name at once

Complete Line of

Beekeepers' Supplies

Catalog on Request

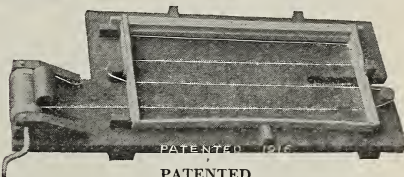
F. Coombs & Sons, Brattleboro, Vt.

"Best" Hand Lantern



A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog. THE BEST LIGHT CO.

306 E. 5th St., Canton, O.



PATENTED

Wright's Frame-Wiring Device

Most rapid in use. Saves cost of machine in one day. Tighter wires; no kinks; no sore hands.

G. B. Lewis Company, Watertown, Wisconsin

**BANKING
BY MAIL
AT 4%**

DISTANCE is no hindrance to saving money
BY MAIL with this large safe bank, at 4
per cent compound interest.

No matter where you live, send today for a
copy of our interesting booklet "Banking by
Mail."

THE SAVINGS DEPOSIT BANK CO.

A.T. SPITZER, Pres.
E.R. ROOT, Vice Pres. E.B. SPITZER, Cash.

MEDINA, OHIO

Our Food Page—Continued from page 401.

then beat in the lemon juice. Beat the whites of the eggs with a wire whisk, as there is more volume in that way, fold the whites carefully into the first mixture and then fold in the flour which has been measured after once sifting and then sifted two or three times. Bake in an ungreased tube cake pan in a slow oven about 40 to 50 minutes and invert on a wire cake cooler until cold.

RHUBARB PUDDING.

- | | |
|----------------------------|-----------------------------|
| 1 qt. rhubarb cut small | 2 teaspoons baking powder |
| about 1 cup sugar or honey | 1 tablespoon shortening |
| 1 cup sifted flour | $\frac{1}{4}$ teaspoon salt |
| | Milk |

Bake the rhubarb and sugar in a covered glass or earthenware dish until tender. Make a biscuit dough of the other ingredients and drop from a teaspoon over the hot fruit, return to the oven and bake until the crust is done and delicately browned. Serve the biscuits inverted with the fruit over them and with butter or thick cream. If tender, red stalks of rhubarb are used, this makes a very pretty dessert. Honey may be used instead of sugar, but to most people the combination of flavors is not pleasant.

NEW ENGLAND

BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England. If you do not have a 1919 catalog send for one at once.

H. H. Jepson, 182 Friend St., Boston, Mass.

GET YOUR CHURN FREE



17,000 Leader Churns, in use all over the country, have removed the dread of churning day by saving time and labor. They make more and better butter 5000 unsolicited testimonials. A. N. Hollis, Lawrenceburg, Tenn. says: "Churning was a burden until we got the Leader. Now the children enjoy to churn. We can churn in 3 or 4 minutes." Special dash—steel frame—light weight—easily cleaned.

Lasts a Lifetime

Sold under two plans. Simply order a trial churn now, without sending any money; then, when satisfied at end of thirty days, remit the price shown below, or take orders from your friends and let your commissions pay for your churn, thus securing your Leader Churn Free.

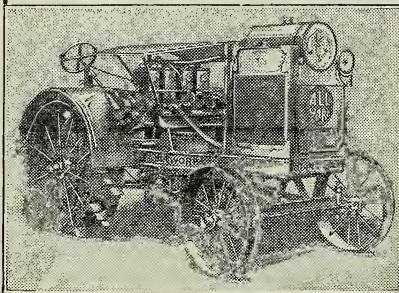
☐ 3 Gal. \$5.00 ☐ 5 Gal. \$5.50 ☐ 8 Gal. \$6.00
Churns 1-2 Gallons Churns 3 Gallons Churns 4 Gallons

Send No Money Order direct from this Adv. checking size of Churn wanted. You pay express charge only. Nursery agents or farmer agents take trial orders. We deliver and collect; no money needed.

Novelty Mfg. Co., Box 722 Abingdon, Ill.

CHURNS IN 3 MINUTES

ALLWORK KEROSENE FARM TRACTOR



*Light and Powerful
Strong and Durable*

Five Years' Successful Service
for Satisfied Owners

Our FREE CATALOG and Suggestions for Tractor Users will interest you whether you buy an ALLWORK or not. Write for them

ELECTRIC WHEEL COMPANY
Box 23A, QUINCY, ILLINOIS

QUEENS QUEENS QUEENS

GOLDEN AND 3-BANDED STRAINS

The demand for Our Famous Disease-Resisting Honey-Gathering Hustlers is greater than ever before. Send for circular and price list. - - - Book your order now.

M. C. BERRY & CO., HAYNEVILLE, ALA., U. S. A.